GSA Genetics Society of America

TAGC 2020
The Allied Genetics Conference

PROGRAM BOOK

Note that TAGC was cancelled and held online with a different schedule and program. This document serves as a record of the original program designed for the in-person meeting.

April 22–26, 2020

Gaylord National Resort & Convention Center

Metro Washington, DC

GENETICS

GSA Genetics Society of America

G3 Genes | Genomes | Genetics

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GENETICS

TAGC is proudly brought to you by the Genetics Society of America (GSA).

GSA is an international scientific society representing more than 5,000 researchers and educators around the world. As well as connecting researchers through conferences and career programs, we publish two peer-edited scholarly journals, GENETICS and G3: Genes|Genomes|Genetics. We encourage all of you to become members so you can make use of exclusive member benefits and get involved in the Society's many programs, including professional development training, awards, advocacy, and more. Join us as we work to advance the field and serve our community. Visit genetics-gsa.org for more information.

2020 GSA Board of Directors

CONFERENCE ORGANIZERS

Allied Program Committee

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Phil Batterham, *University of Melbourne*

Hugo Bellen, *Baylor College of Medicine*

Kirsten Bomblies, *ETH Zurich*

Maitreya Dunham, *University of Washington*

Phil Hieter, *University of British Columbia*

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Steve Munger, *The Jackson Laboratory*

Dmitri Petrov, *Stanford University*

Piali Sengupta, *Brandeis University*

Kailene Simon, *Atlanta Therapeuties*

Community Committees

The Allied Program Committee would like to thank the following community committees and GSA committees for their help:

C. elegans

Co-Chair: Mike Boxem

Co-Chair: Martha Soto

Program Committee

Needhi Bhalla

Michalis Barkoulas

Olivia Casanueva

Julie Claycomb

Luisa Cochella

Brent Derry

Denis Dupuy

Max Heiman

Diana Libuda

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Sara Olson

Yonathan Tzur

Natascia Ventura

Ann Wehman

Itai Yanai

Drosophila

Community Program Committee

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Hugo Bellen

Helen McNeil

Brian Oliver

Session Chairs

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Mary Baylies

Leif Benner

Nancy Bonini

Heidi Bretscher

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Giorgio Gilestro

Lindsey Goodman

Brent Graveley

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Astrid Haase

Melissa Harrison

Bassem Hassan

Robin Hiesinger

Heinrich Jasper

Daniel McKay

Kate O'Connor-Giles

Jeff Sekelsky

Matt Sieber

Nic Tapon

Melanie Worley

Mammalian Genetics

Community Program Committee

Chair: Steven Munger

Martin Hrabě de Angelis

Darla Miller

Fernando Pardo-Manuel de Villena

Linda Siracusa

Session Chairs

Emily Davenport

Marty Ferris

Teresa Gunn

Lauryl Nutter

Laura Reinholdt

Xavier Warot

Population, Evolutionary, and Quantitative Genetics

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Co-Chair: Dmitri Petrov

Co-Chair: Patrick Phillips

Ed Buckler

Catherine Linnen

Harmit Malik

Sally Otto

Bret Payseur

Sohini Ramachandran

Jeffrey Ross-Ibarra

Paul Turner

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Felicity Jones

Emily B. Josephs

Daniel Matute

C. Brandon Ogbunu

Molly Schumer

Xenopus

Chair: Sally Moody

Yeast

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Co-Chair: Michael Knop

Co-Chair: Peter Stirling

Program Committee

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Karen Arndt

Kristin Baetz

Anastasia Baryshnikova

Alison Bertuch

Rachel Brem

Grant Brown

Anita Corbett

Claudio De Virgilio

Ann Ehrenhofer-Murray

Stacia Engel

Douglas Fowler

Jen Gallagher

Elizabeth Grayhack

Nicholas Guydosh

Pamela Hanson

Grzegorz Ira

Jill Keeney

Oliver Kerscher

Romain Koszul

Karl Kuchler

Soni Lacefield

Chris Loewen

Michael McMurray

Mary Miller

Yoshikazu Ohya

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Joseph Schacherer

Gavin Sherlock

Jeremy Thorner

Phong Tran

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Kevin Verstrepen

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Courtney Scerbak

Rachelle Spell

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Erin Suderman, Staff Liaison

GSA Conference Childcare Committee

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Sean Curran

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Gillian Stanfield

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Sarah Bay, Staff Liaison

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Joycelyn Johnson, Staff Liaison

GENERAL INFORMATION

Mobile App

Download the GSA mobile app to your smartphone (iOS and Android platforms) for schedules, abstracts, presenter lists, maps, your notes, and other useful information. Blackberry and Windows Mobile Device users have full access to the same information through the web version of the app, available online: genetics-gsa.org/tagc-2020/program-planner.

Registration, Badges, and Pre-ordered T-shirts

Registrants can pick up registration materials and Certificates of Attendance at the registration desk in the Cherry Blossom Ballroom lobby during registration hours.

Wednesday, April 22	3:00 pm – 9:00 pm
Thursday, April 23	7:30 am – 5:00 pm
Friday, April 24	7:30 am – 5:00 pm
Saturday, April 25	7:30 am – 4:00 pm

For admission to all sessions, posters, the exhibit hall, and mixers, attendees must have TAGC badges. Security will not allow individuals without badges to enter the exhibit hall. If you lose your badge, you may request a replacement at the registration desk.

If you ordered a T-shirt in advance, you can pick it up at GSA Central in the Exhibit Hall during the Exhibit hours. A limited quantity will be available for purchase at the registration desk starting on Thursday, April 23.

Oral Presenters: Speaker Ready Room - Camellia 4

If you will be giving an oral presentation (except as a poster preview presenter or in a workshop), you must load and check your presentation in the Speaker Ready Room the day before the start of your session. The room is located in Camellia 4 and will be open during the following hours:

Wednesday, April 22	1:00 pm – 6:00 pm
Thursday, April 23	7:00 am – 4:00 pm
Friday, April 24	7:00 am – 4:00 pm
Saturday, April 25	7:00 am – 4:00 pm

NOTE: Presentations cannot be uploaded in the meeting room; you must check in at the Speaker Ready Room. Workshop speakers should coordinate directly with the workshop organizers and should not upload their talks in the Speaker Ready Room.

Poster Sessions and Exhibits - Prince George's Exhibition Hall

All posters and exhibits will be in the Prince George's Exhibition Hall. The hall will be open to conference registrants between the hours of 6:00 am and midnight daily for poster viewing, which will begin at 5:00 pm, Thursday, April 23 and end at 7:00 pm, Saturday, April 25. Security will be posted at the entrance to the hall, and only individuals with a TAGC badge will be admitted.

Poster Presentation Schedule:

Thursday, April 23	7:45 pm – 8:30 pm	"A" posters
	8:30 pm – 9:15 pm	"B" posters
	9:15 pm – 10:00 pm	"C" posters
Friday, April 24	4:30 pm – 5:30 pm	Odd-numbered posters
	5:30 pm – 6:30 pm	Even-numbered posters
Saturday, April 25	4:15 pm – 5:15 pm	Even-numbered posters
	5:15 pm – 6:15 pm	Odd-numbered posters

All posters must be removed from poster boards no later than 7:00 pm on Saturday, April 25. After that time, remaining posters will be removed and recycled. Posters may only be removed by their own authors. Posters that are not collected may not be taken by someone who is not an author on that poster.

Visit the Exhibit Hall to see the latest technology, hear presentations at the Discovery Stage, and meet with GSA editors. Be sure to visit all of the exhibitors who have come to support your science and show you how they can help advance your research. You can renew current relationships or meet potential future suppliers. Exhibitors are ready to meet with you during the following hours:

Thursday, April 23	7:30 pm – 10:00 pm
Friday, April 24	4:15 pm – 7:30 pm
Saturday, April 25	4:15 pm – 7:00 pm

Discovery Stage in the Exhibit Hall

Learn from our exhibitors! Presentations at Discovery Stage will take a deeper dive into new technologies and products. Check the mobile app for updates.

4:30 pm – 4:50 pm	Genscript	Josh Wang, PhD	An efficient, tunable solution for pre-capture multiplexing in targeted sequencing via novel chemistry and semiconductor DNA synthesis technology
4:55 pm – 5:15 pm	MDPI	Marcos Arranz	MDPI and Open Access Publishing
5:20 pm – 5:40 pm	Inscripta	Bryan Leland, PhD	A benchtop platform for massively parallel CRISPR-based microbial genome engineering
5:45 pm – 6:05 pm	Ramona Optics	Mark Harfouche, PhD	High resolution over large areas: a new class of experimental research with Ramona Optics
6:10 pm – 6:50 pm	Bionano	Sven Bocklandt, PhD	Resolve genome-wide SVs down to 1% allele fraction with highest sensitivities and lowest false positives with Bionano Genome Imaging

GSA Central - Booth 520

Stop by GSA Central in Prince George's Exhibition Hall to meet the Journals staff and editors, pick up your pre-ordered meeting T-shirt, and let us know how the Society can better serve you. You can also sign up to meet one-on-one with an editor from GENETICS or G3. Note that T-shirts cannot be purchased at the booth.

Badge ribbons are available at GSA Central, including Job Seeker, Hiring, GENETICS Author, and G3 Author ribbons. You can also pick up theme and community buttons to show off your scientific interests on your lanyard!

Internet Access

Complimentary Wi-Fi is available at the Gaylord National Harbor in guest rooms, public space, and the lobby. When in the meeting space, select the GSA TAGC20 network. The password is GSATAGC20.

Community Hubs

The seven official TAGC communities will have a "Community Hub" area where you can charge your phone, take a break, and catch up with colleagues. Look out for direction signs throughout the meeting space and follow your colleagues out of the Opening Keynote to your Hub for a drink and conversation on Wednesday night. The Hubs will be available all week at the following locations:

C. elegans	Woodrow Wilson Ballroom A	*Sponsored by SunyBiotech*
Drosophila	Potomac Ballroom C Foyer	
Mammal	Potomac Ballroom 4 Foyer	
PEQG	Cherry Blossom Ballroom Foyer	
Xenopus	Chesapeake Ballroom A (reception Maryland Ballroom C Foyer)	
Yeast	Woodrow Wilson Ballroom B	*Sponsored by Inscripta*
Zebrafish	Maryland Ballroom C (reception Maryland Ballroom C Foyer)	

Story Collider

At the Story Collider live show, storytellers from our community will share "behind-the-scenes" moments from their life and science. If you did not register in advance, stop by the conference registration desk to check for ticket availability.

Multi-faith Prayer Room - Chesapeake G

This room is open to conference participants as a quiet place to meditate or pray. The room will be open from 7:30 am until 10:00 p.m, Wednesday through Saturday.

Security/Lost and Found

For all emergencies and lost and found items contact the Gaylord National Harbor Security by dialing 0 from any house phone. You can also request assistance at the conference registration desk.

Parking

Discounted self-parking ($20 per day) is available for conference attendees. If you are staying at the hotel, please notify the front desk that you have a car when you check in. Guests of the hotel will have in and out privileges, meaning you can leave and return to the parking garage as much as you like. If you are attending the meeting but not staying at the hotel, the discounted rate is only valid for one exit from the parking garage. So if you leave and come back during the same day, you will have to pay an additional fee (the prevailing rate or $20, depending on the time).

If you are not staying at the hotel, please visit the parking desk in the Woodrow Wilson Ballroom Foyer to pay for your parking at the discounted rate. Vouchers will only be available at this parking desk and during the following hours:

Wednesday	12:00 noon – 7:00 pm
Thursday	12:00 noon – 5:00 pm
Friday	12:00 noon – 5:00 pm
Saturday	12:00 noon – 5:00 pm
Sunday	8:00 am – 1:00 pm

National Harbor Circulator Bus

The National Harbor Circulator Bus will take hotel guests to locations around National Harbor including the Tanger Outlets between the hours of 11:00 am and midnight. The shuttle picks up at the Woodrow Wilson bus loop at the conference hotel (across from the parking garage). There is no cost for the shuttle for those staying at the hotel, but you will need to show your room key. The bus leaves every half hour on the hour.

Nursing Rooms

Nursing Rooms are available in three locations:

- Ballroom level (Potomac Ballroom Green Room)
- Prince George's Exhibition Hall Foyer
- Woodrow Wilson Ballroom Foyer

The rooms will be open from 7:30 am until 10:00 pm Thursday through Saturday and 7:30 am to 12:00 noon on Sunday. Each room can accommodate multiple people in screened-off areas and will provide comfortable seating, outlets, a refrigerator, sanitizing wipes, and hand sanitizer. The rooms will be near bathrooms for access to sinks.

Space will be available in each room for storing pumping equipment, bottles, etc.; however, the room will not be secured, so any items left are at your discretion. All items must be removed from the nursing rooms at the end of each day and by Sunday, April 26, 2020, at noon.

Attendees who are guests at the Gaylord National Resort may take labelled breast milk to the front desk to be stored in a freezer.

Childcare

For those who have signed up in advance, childcare is located in the Magnolia Room. For more information, please contact registration@accentoca.com.

Guidelines for Children at TAGC

TAGC 2020 welcomes attendees with children! Children are allowed in keynote, concurrent, and poster sessions; this includes babywearing of young children.

To ensure the safety of all children in attendance and to create a productive and fulfilling meeting atmosphere for all attendees, we ask all parents and caregivers to abide by the following guidelines:

- Children must be supervised by an adult in all meeting areas.
- Parents and caregivers should do their best to ensure that children are not disruptive to any sessions they attend (including poster sessions). Large sessions will have seating at the back of the room reserved for attendees with children to allow for easy access in and out of the room. These seats will be clearly marked.
- For safety reasons, children are not allowed in the exhibit/poster hall during set-up or break-down times.

CONFERENCE POLICIES

Code of Conduct

The Genetics Society of America Conferences foster an international community of geneticists and provide an opportunity to discuss scientific advances and form new collaborations.

GSA values your attendance and wants to make your experience productive and inspiring by fostering an open exchange of ideas in a professional setting. Our Code of Conduct was established to communicate a transparent set of standards and guidelines for acceptable behavior at GSA Conferences and to provide a positive, safe, and welcoming environment for all attendees, vendors, volunteers, and staff.

All conference participants (regardless of their role) are expected to follow the Code of Conduct while attending any portion of the meeting, including but not limited to meeting rooms, the exhibit/poster hall, meeting areas in the official conference venue, and social events provided by the meeting or vendors.

Unacceptable Behaviors

Unacceptable behaviors include, but are not limited to:

- Intimidating, harassing, abusive, discriminatory, derogatory, or demeaning speech or actions by any participant and at all related events
- Harmful or prejudicial verbal or written comments or visual images related to gender, gender expression, gender identity, marital status, sexual orientation, race, religion, political orientation, socioeconomic, disability or ability status, or other personal characteristics, including those protected by law
- Inappropriate use of nudity and/or sexual images in public spaces (including presentation slides and posters)
- Deliberate intimidation, stalking, or following
- Violating the rules and regulations of the conference hotel
- Sustained disruption of scientific sessions or other events
- Unwelcome and uninvited attention or contact
- Physical assault (including unwelcome touching or groping)
- Real or implied threat of physical harm
- Real or implied threat of professional or financial damage or harm
- Harassing or unwanted photography
- Photographing slides of oral presentations and posters without permission
- Recording of scientific and other sessions without permission

Taking action or making a report

- If you feel threatened, witness someone being threatened, or observe behavior that presents an immediate or serious threat to public safety, please contact venue staff/security or call 911 immediately.
- GSA staff is available to assist participants in contacting hotel security or local law enforcement, and otherwise assist those experiencing harassment.
- If you see someone taking photographs or videos of a presentation or poster (where permission has not been granted), you may choose to remind them of the Code of Conduct policy and ask them to stop photographing the presentation or poster.
- You may also report unauthorized photography to GSA Staff.
- Need to file a complaint at the meeting? Please call or text 240/712-2254.

CONFERENCE POLICIES

Consequences of non-compliance

Anyone asked by GSA, the venue or security staff, or law enforcement officers to stop unacceptable behavior is expected to comply immediately. Retaliation toward GSA or toward someone reporting an incident or after experiencing any of the following consequences will not be tolerated and may result in additional sanctions.

The consequences of non-compliance with GSA's Code of Conduct may include:

- Immediate removal from the meeting without warning or refund
- Restrictions from future GSA meeting attendance
- Termination of GSA membership or positions on GSA Boards or Committees
- Incidents may be reported to the proper authorities

If you would like to file a report please go to genetics-gsa.org, ethicspoint.com or call (844) 990-0204.

Onsite, if you feel unsafe or would like to talk to someone, please contact anyone with a GSA Staff Ribbon for assistance or call (240) 712-2254.

Accessibility

GSA is committed to assisting attendees with special needs. If you have accessibility questions or requests please email gsaconferences@genetics-gsa.org. If you have difficulty walking long distances, consider renting a scooter from Scoot Around. They will deliver your scooter to your hotel and pick it up when you no longer need it. For more details, visit www.scootaround.com or call (888) 441-7575.

Diversity and Inclusion

GSA is committed to promoting equality, diversity, and inclusion to create greater opportunity for any individual to fulfill their scientific potential, irrespective of their background, gender, or circumstances. This diversity leads to innovation by attracting the widest possible talent to the community and fostering a greater diversity of ideas, approaches, and perspectives. The Organizing Committee aims to select speakers and session chairs that represent the breadth and diversity of the discipline and conference participants. GSA especially encourages the Committee to select excellent speakers from groups traditionally underrepresented in science.

Social Media/Photo/Video Policy

Live tweeting of presentations is allowed unless the speaker explicitly opts out by stating so at the start of his or her talk. Taking or sharing photos or videos of posters is permitted only with the presenter's consent during the assigned poster session. Taking photos of posters while the presenter is not present is strictly prohibited. By attending a GSA conference, you grant GSA the right to use your photograph, name, and likeness for use in GSA educational, news, or promotional materials.

General Safety Tips for Attending Meetings

You should practice common sense safety guidelines when attending any conference:

- Be aware of your surroundings at all times, and don't get distracted by your phone.
- Use the buddy system when leaving the hotel, especially during early morning and late evening hours.
- Don't wear your meeting badge outside of the designated meeting space or when you leave the hotel.
- Don't carry a lot of cash or credit cards. Use the hotel room safe.
- Don't leave personal property unattended anywhere, at any time.

SCHEDULE OF EVENTS

WEDNESDAY, April 22		
3:00 pm - 9:00 pm	**Registration Open**	Cherry Blossom Ballroom Lobby
6:45 pm - 9:00 pm	**Opening Keynote Session**	Potomac Ballroom
9:00 pm - 9:30 pm	**Ira Herskowitz Award Presentation to Jonathan Weissman, University of California, San Francisco (Yeast)**	Woodrow Wilson B
9:00 pm - 10:00 pm	**CONCURRENT COMMUNITY MIXERS**	
	***C. elegans* Community Mixer**	Woodrow Wilson A
	***Drosophila* Community Mixer**	Potomac Ballroom Pre-Function
	Mammalian Community Mixer	Potomac D/4-6
	PEQG Community Mixer	Cherry Blossom Ballroom Lobby
	***Xenopus* Community Mixer**	Maryland C
	Yeast Community Mixer *Sponsored by Fred Hutchinson Cancer Research Center*	Woodrow Wilson B
	Zebrafish Community Mixer	Maryland C

THURSDAY, April 23		
7:00 am - 4:00 pm	**Speaker Check-in and Upload (required)** *Invited, keynote, oral and poster preview only. Workshop speakers should coordinate directly with their workshop organizer.*	Camellia 3/4
7:30 am - 5:00 pm	**Registration Open**	Cherry Blossom Ballroom Lobby
8:00 am - 10:00 am	**CONCURRENT COMMUNITY SESSIONS**	
	Demographic Inference (PEQG)	Cherry Blossom Ballroom
	Development and Cell Biology (*C. elegans*)	Woodrow Wilson A
	Disease Models and Aging (Mammal)	Potomac D/4-6
	Genetic Control of Development and Regeneration (Zebrafish)	Maryland C
	Gimme a Break: Chromosome Stability in Stress and Development (Yeast) *Sponsored by Inscripta*	Woodrow Wilson Ballroom B-D
	Plenary Session and Image Awards (*Drosophila*)	Potomac A/B
	Technologies, Resources and Genomics (*Xenopus*)	Chesapeake A-C
10:00 am - 10:30 am	*Coffee Break*	
10:00 am - 10:30 am	**Parents in Science Meetup** *Share your challenges and tips with others regarding parenting and science.*	Chesapeake 1-3
10:00 am - 10:30 am	**Solo Travelers Meetup** *Connect with others who may be attending without their labmates.*	Chesapeake 4-6
10:30 am - 12:30 pm	**CONCURRENT COMMUNITY SESSIONS**	
	Biotech Pipeline *Sponsored by Calico*	Maryland A
	Chapman Lecture and Gene Regulation (Mammal)	Potomac D/4-6
	Disease Models (*Xenopus*)	Chesapeake A-C
	Gene Regulation (Yeast) *Sponsored by Inscripta*	Woodrow Wilson Ballroom B-D
	Neurogenetics (Zebrafish)	Maryland C
	New Technology and Resources in Development (*C. elegans*)	Woodrow Wilson A
	Plenary Session and Larry Sandler Award Lecture (*Drosophila*)	Potomac A/B
	The Evolution of Gene Expression (PEQG)	Cherry Blossom Ballroom

THURSDAY, April 23		
12:30 pm - 1:45 pm	**Break**	
12:30 pm - 1:45 pm	**Community Connections** *Beverages will be provided. Lunch available for purchase from Harbor Marketplace.*	Eastern Shore 2
12:30 pm - 2:00 pm	**IMGS Nomenclature Meeting**	Azalea 1
1:45 pm - 3:45 pm	**CONCURRENT THEMATIC SESSIONS**	
	Chromatin and Transcription	Potomac D/4-6
	Developmental Genetics: The Germline	Maryland A
	Diversity, Equity, and Inclusion Session	Woodrow Wilson A
	Modeling Human Diseases in Diverse Systems	Maryland C
	The Architectures of Complex Traits	Cherry Blossom Ballroom
4:00 pm - 5:30 pm	**CONCURRENT THEMATIC SESSIONS**	
	Crow Award Talks (PEQG)	Cherry Blossom Ballroom
	New Technology and Systems Biology	Potomac A/B
	Reproducibility for Everybody	Maryland C
	The Ins and Outs of NIH Peer Review	Maryland 1-2
	Undergraduate Session	Maryland A
	Visualizing Intracellular Dynamics	Potomac D/4-6
5:45 pm - 6:30 pm	**Gruber Genetics Prize Presentation** *Bonnie Bassler will deliver the 2020 Gruber Genetics Prize Lecture.*	Potomac A/B
6:30 pm - 7:30 pm	**Break**	
7:30 pm - 10:00 pm	**Exhibit Hall Open**	Prince George's Hall
7:30 pm - 10:15 pm	**Poster Session and Opening Mixer** *7:45-8:30 pm A Posters* *8:30-9:15 pm B Posters* *9:15-10:00 pm C Posters*	Prince George's Hall

FRIDAY, April 24		
7:00 am - 4:00 pm	**Speaker Check-in and Upload (required)** *Invited, keynote, oral and poster preview only. Workshop speakers should coordinate directly with their workshop organizer.*	Camellia 3/4
7:30 am - 5:00 pm	**Registration Open**	Cherry Blossom Ballroom Lobby
8:00 am - 10:00 am	**CONCURRENT WORKSHOPS**	
	Bioethics and Education	Baltimore 3-5
	BREW: Bridging Research and Education Workshop	Annapolis 1-2
	Cell-Cell Signaling Across the Kingdoms	Maryland C
	Chemoreception, Physiology and Social Behavior: A Genetic Perspective	National Harbor 12/13
	Cultivating Communities: Making Sense of Host-Microbiome Interactions Through the Lens of Genetics	Baltimore 1/2
	Education Research: Collecting Evidence and Publishing Findings	Annapolis 3
	Everything You Ever Wanted To Know about Sex	Maryland D
	Genetic Puzzles	Maryland 1-2
	Genetic Technology in Practice *Sponsored by DuPont and Zymergen*	Maryland A
	Metabolic Plasticity – Exploring the Flexibility of Metabolic Networks in the Context of Development, Evolution, Environmental Stress, and Disease	Maryland B
	Mitochondrial Genetics	National Harbor 6/7
	Science Communication: Challenges and Impact	National Harbor 4/5
	Single Cell Approaches in Animal Development	National Harbor 10/11
	The Geometry of Life, Computational Phenomics, and the Reunification of Biology	National Harbor 2/3
8:00 am - 2:00 pm	**Genetics Department Chair Meeting** *Invitation only*	Riverview B
10:00 am - 10:30 am	**Coffee Break**	Potomac Ballroom Pre-Function
10:00 am - 10:30 am	**Doing Science at a PUI Meetup** *For those currently teaching at a Primarily Undergraduate University and those who would like to learn more.*	Chesapeake 4-6
10:00 am - 10:30 am	**Scientists with Disabilities Meetup** *Share your tips and challenges with others navigating science with disabilities.*	Chesapeake 1-3

FRIDAY, April 24		
10:30 am - 12:30 pm	**CONCURRENT COMMUNITY SESSIONS**	
	Adaptation in Natural Populations (PEQG)	Cherry Blossom Ballroom
	Cell Fate and Patterning (*Xenopus*)	Chesapeake A-C
	Disease Models and Aging (*Drosophila*)	Potomac C/1-3
	Genomics and Systems Biology (Mammal)	Potomac D/4-6
	Genomics, Gene Regulation, and Systems Biology (*C. elegans*)	Woodrow Wilson A
	Genomics/Systems Biology and Gene Regulation (*Drosophila*)	Potomac A/B
	New Technologies and Resources (Zebrafish)	Maryland C
	New Technologies and their Impact (Yeast)	Woodrow Wilson Ballroom B-D
12:30 pm - 2:00 pm	**Break**	
12:30 pm - 2:00 pm	**GSA Publishing Q and A** *Advance Registration Required.*	Annapolis 1-2
2:00 pm - 4:00 pm	**CONCURRENT THEMATIC SESSIONS**	
	Developmental Genetics: Cell Specification and Competition	Potomac A/B
	Education Session	Maryland A
	Models of Neurological Diseases	Woodrow Wilson A
	New Technology and Resources	Potomac C/1-3
	Through a Population Genetics Lens	Cherry Blossom Ballroom
4:15 pm - 7:30 pm	**Exhibit Hall Open**	
4:15 pm - 6:30 pm	**Poster Session** *4:30-5:30 Odd Poster Numbers* *5:30-6:30 Even Poster Numbers*	Prince George's Hall
6:30 pm - 8:00 pm	**Break**	
6:30 pm - 7:45 pm	**GSA Journals Editors Social** *Invitation only*	
8:00 pm - 10:15 pm	**Keynote Session 2**	Potomac Ballroom
10:15 pm - 11:00 pm	**Tweetup**	Cherry Blossom Ballroom Lobby

SATURDAY, April 25		
7:00 am - 4:00 pm	**Speaker Check-in and Upload (required)** *Invited, keynote, oral and poster preview only. Workshop speakers should coordinate directly with their workshop organizer.*	Camellia 3/4
7:30 am - 4:00 pm	**Registration Open**	Cherry Blossom Ballroom Lobby
8:00 am - 10:00 am	**CONCURRENT THEMATIC SESSIONS**	
	Direct Collaborations Between Model Organism Researchers and Clinicians	Potomac C/1-3
	Departures from Additivity: Dominance, Epistasis and GxE	Cherry Blossom Ballroom
	Gene Regulation: RNA Features and Functions	Maryland A
	Genetics of Neuronal Development and Behavior	Potomac A/B
	Genome Integrity	Maryland C
10:00 am - 10:30 am	**Coffee Break**	
10:00 am - 10:30 am	**LGBTQ+ in Science Meetup** *Connect with other LGBTQ+ scientists*	Chesapeake 4-6
10:00 am - 10:30 am	**SciComm Meetup** *Meet others who share your passion for science communication*	Chesapeake 1-3
10:30 am - 12:30 pm	**CONCURRENT THEMATIC SESSIONS**	
	Complex Trait Adaptation	Cherry Blossom Ballroom
	Developmental Genetics: Organ Systems	Potomac A/B
	Discovering Careers in Industry *Sponsored by Calico and DuPont*	Maryland A
	Genomics and Systems Biology	Maryland C
	Mechanistic Intracellular Dynamics	Potomac C/1-3
12:30 pm - 2:00 pm	**Advocacy Event** *Lunch available for purchase*	Eastern Shore 3
12:30 pm - 2:00 pm`	**Yeast Genetics Program Committee Meeting** *Invitation only*	Azalea 1
2:00 pm - 4:00 pm	**CONCURRENT COMMUNITY SESSIONS**	
	Developmental Genetics (*Drosophila*)	Potomac A/B
	Developmental Genetics (Mammal)	Potomac D/4-6
	Divergence, Hybridization and Reproducible Isolation (PEQG)	Cherry Blossom Ballroom
	Germ Line (*C. elegans*)	Woodrow Wilson A
	Insights into Cellular Dynamics and Functions (Zebrafish)	Maryland C
	Neurogenetics/New Technology (*Drosophila*)	Potomac C/1-3
	System Biology of Yeast (Yeast)	Woodrow Wilson Ballroom B-D

SATURDAY, April 25		
4:15 pm - 7:30 pm	**Exhibit Hall Open**	Prince George's Hall
4:15 pm - 6:15 pm	**Poster Session** *4:15-5:15 Even Poster Numbers* *5:15-6:15 Odd Poster Numbers*	Prince George's Hall
6:15 pm - 7:45 pm	**Break**	
6:15 pm - 7:45 pm	**Early Career Leadership Reception** *Invitation only*	Baltimore 3-5
7:45 pm - 9:30 pm	**Keynote Session 3**	Potomac Ballroom
9:30 pm - 11:00 pm	**Story Collider** *Ticketed Event*	Woodrow Wilson A

SCHEDULE OF EVENTS

SUNDAY, April 26		
8:00 am - 10:00 am	**CONCURRENT COMMUNITY SESSIONS**	
	Disease Models (Zebrafish)	Annapolis
	Dynamics and Regulation of Cellular Organization (Yeast)	Woodrow Wilson Ballroom B-D
	Future Visions of Population, Evolutionary, and Quantitative Genetics (PEQG)	Cherry Blossom Ballroom
	Gene Regulation/Genome Integrity (*Drosophila*)	Potomac A/B
	Intracellular Dynamics (*Drosophila*)	Potomac C/1-3
	Neuronal Development (*C. elegans*)	Woodrow Wilson A
	New Technology and Resources (Mammal)	Potomac D/4-6
10:00 am - 10:30 am	**Coffee Break**	
10:30 am - 12:30 pm	**Closing Keynote Session**	Potomac Ballroom

ORAL AND WORKSHOP SESSIONS

Wednesday, April 22

6:45 pm - 9:00 pm
Potomac Ballroom

Opening Keynote Session

Session Chairs:
Denise Montell
Mark Johnston

Welcome and opening remarks

Cellular Biographies: Reconstructing zebrafish development. **Alex Schier**

Detecting and Correcting Errors in Mitosis. **Sue Biggins**

Haystack to needle: moving from quantitative to developmental genetics of a reproductive trait. **Cassandra Extavour**

Genetics Society of America Award Presentations

NIGMS and the Research Organism Landscape. **Jon Lorsch**

Wednesday, April 22
9:00 pm - 9:30 pm
Woodrow Wilson B

Ira Herskowitz Award Presentation to Jonathan Weissman, University of California, San Francisco (Yeast)

Thursday, April 23

8:00 am - 10:00 am
Woodrow Wilson A

Development and Cell Biology (*C. elegans*)

Session Chair:
Jessica Feldman

5 8:00 am Nuclear lipid droplets in *C. elegans* germ cells. **James Priess**

6 8:30 am Different paths to the same cell type. **Karolina Mizeracka**

7 8:45 am The role of cell cycle in invasive differentiation behavior of the *C. elegans* anchor cell. **Taylor Medwig-Kinney**

8 9:00 am Single-zygote analysis of protein quantitation reveals high robustness of cell polarisation and asymmetric division to perturbations in PAR protein abundance. **Nelio Rodrigues**

9 9:15 am PAR polarity proteins direct intracellular tube expansion through apical recruitment of the exocyst complex. **Joshua Abrams**

10 9:30 am Multi-tissue patterning drives anterior morphogenesis in the *C. elegans* embryo. **Alisa Piekny**

1408A 9:45 am Molded by Matrix: A multi-layered, pre-cuticular apical extracellular matrix shapes the *C. elegans* vulval lumen. **Alessandro Sparacio**

1426A 9:47 am RhoGAP RGA-8 supports morphogenesis in *C. elegans* by polarizing epithelia through CDC-42. **Martha Soto 1929C** 9:49 am Memory of temperature experience shapes the oxidative stress response. **Francesco Servello**

1741A 9:51 am Spatial segregation of Ras effectors Raf and RalGEF to distinct subcellular compartments defines a potential mechanism for Ras effector switching. **David Reiner**

1407C 9:53 am Matrix assembly and function of a *C. elegans* ZP protein. **Jennifer Cohen**

1732A 9:55 am CK2-dependent phosphorylation regulates ZYG-1/Plk4 stability and centrosome number. **Mi Hye Song**

Thursday, April 23
8:00 am - 10:05 am
Potomac A/B

Plenary Session and Image Awards (*Drosophila*)

Session Chair:
Lynn Cooley

11 8:00 am Meiotic drive and satellite DNA in *Drosophila melanogaster*. **Amanda Larracuente**

12 8:30 am Metabolic responses to a stressful start in life. **Alex Gould**

13 9:00 am GCNA preserves genome integrity and fertility across species. **Michael Buszczak**

14 9:30 am Going in circles gets you somewhere – signaling mechanisms that coordinate cell movements for collective migration. **Sally Horne-Badovinac**

15 10:00 am *Drosophila* Image Awards

Thursday, April 23
8:00 am - 10:00 am
Potomac D/4-6

Disease Models and Aging (Mammal)

Session Chairs:
Fernando Pardo-Manuel de Villena
Emily Davenport

16 8:00 am Nuclear pore protein, NUP210 promotes metastasis through alteration of chromatin accessibility on mechanosensitive genes. **Kent Hunter**

17 8:30 am *Prdm14* initiates a novel early B-1-like lymphoblastic leukemia in mice. **Lauren Tracey**

18 8:45 am Generation of a robust and clinically-relevant mouse model of Cerebral Cavernous Malformations. **Douglas Marchuk**

19 9:00 am *ZNF423* patient variants, truncations, and in-frame deletions in mice define an allele and domain-dependent series of midline brain abnormalities. **Bruce Hamilton**

20 9:15 am CRISPR/Cas9 complement *C3* rat knockout model implicates C3 in neuropathy. **Thom Saunders**

21 9:30 am Mouse models of an undiagnosed pediatric neurodegenerative disorder. **Jay Vivian**

22 9:45 am Analyzing Hematology by Complete Blood Count in a Genetically Diverse Mouse Population: Changes with Age and Impacts on Mortality Risk. **Andrew Deighan**

Thursday, April 23
8:00 am - 10:00 am
Cherry Blossom Ballroom

Demographic Inference (PEQG)

Session Chair:
Hopi Hoekstra

23 8:00 am Recurrent Collection of *Drosophila melanogaster* from Wild African Environments and Genomic Insights into Species History. **John Pool**

24 8:15 am Extensive genome-wide homozygosity tracts reveal micro-environment population structure in *Drosophila* populations. **Peter Andolfatto**

25 8:30 am Fast estimation of effective migration surfaces. **Joseph Marcus**

26 8:45 am Reconstructing spatio-temporal patterns of admixture in human history using present-day and ancient genomes. **Manjusha Chintalapati**

27 9:00 am Uncovering the evolutionary history of the Turkana, a desert pastoralist group. **Amanda Lea**

28 9:15 am Genomic signatures of sex differences in selection in contemporary humans. **Filip Ruzicka**

29 9:30 am The Genomic Landscape of Neanderthal Ancestry in Modern Humans. **Arun Sethuraman**

1240A 9:45 am Demographic inference of a human pastoralist population in Northern KenyaDemographic inference of a human pastoralist population in Northern Kenya. **Tanya Phung**

1232B 9:47 am Coalescent inference of mutation spectrum histories from sample frequency spectra. **William DeWitt**

1295B 9:49 am Determining the risk of hemiplasy in the presence of incomplete lineage sorting and introgression. **Mark Hibbins**

1238B 9:51 am Inferring the Demographic History of Inbred Species from Genome-Wide SNP Frequency Data. **Ryan Gutenkunst**

1041C 9:53 am Population genomics of the *Drosophila yakuba* clade species facilitated by new highly contiguous genome assemblies. **Kevin Deitz**

1239C 9:55 am Demographic model classification with Deep Learning. **Ariella Gladstein**

Thursday, April 23
8:00 am - 10:00 am
Chesapeake A-C

Technologies, Resources and Genomics *(Xenopus)*

Session Chair:
Sally Moody

30 8:00 am Resources and services for the study of human disease and development available at the National *Xenopus* Resource. **Marcin Wlizla**

31 8:20 am GEO Data, Human Disease, and Phenotypes on Xenbase: New Tools and Features. **Malcolm Fisher**

32 8:40 am A genome editing laboratory course for undergrads using CRISPR in butterflies and frogs. **Arnaud Martin**

33 9:00 am Differential embryonic gene activation across the subgenomes of *Xenopus* laevis. **Wesley Phelps**

34 9:15 am Temporal proteomic characterization of inner ear development. **Aparna Baxi**

35 9:30 am The diversification of transcriptional regulator RFX gene family in vertebrate ciliogenesis. **Taejoon Kwon**

Thursday, April 23
8:00 am - 10:00 am
Woodrow Wilson Ballroom B-D

Gimme a Break: Chromosome Stability in Stress and Development (Yeast)

Sponsored by Inscripta

Session Chairs:
Helle Ulrich
Michael Polymenis

36 8:00 am GLOE-Seq – a new genomic tool to map replication patterns and DNA lesions with nucleotide resolution. **Helle Ulrich**

37 8:15 am Using COMPASS to navigate through meiosis. **Michael Law**

38 8:30 am The Function and Mechanism of Recombination-Associated DNA Synthesis During Meiosis. **Shannon Owens**

39 8:45 am Checkpoint Kinases Regulate Protein Re-localization during Replication Stress in *Saccharomyces cerevisiae*. **Brandon Ho**

40 9:00 am A phosphosite in Mec1 (ATR) controls RNA polymerases under hydroxyurea-induced replication stress. **Verena Hurst**

41 9:15 am Systemic Aneuploidization of the Yeast Genome. **Lydia Heasley**

42 9:30 am Multiple origins of large insertions at chromosomal breaks. **Yang Yu**

43 9:45 am Translational control of methionine and serine metabolic pathways underpin the paralog-specific phenotypes of Rpl22 ribosomal protein mutants in cell division and replicative longevity. **Michael Polymenis**

Thursday, April 23
8:00 am - 10:00 am
Maryland C

Genetic Control of Development and Regeneration (Zebrafish)

Session Chairs:
Christian Mosimann
Mary Mullins

44 8:00 am *foxm1* is required for cardiomyocyte proliferation after zebrafish cardiac injury. **Daniel Zuppo**

45 8:15 am Enhancers and the uneven distribution of regenerative capacities in vertebrates. **Wei Wang**

46 8:30 am *Robo2* and Type-IV Collagen function in a common molecular pathway to promote target-specific axon regeneration. **Patti Murphy**

47 8:45 am Characterizing mechanisms of conserved skin appendage formation at single-cell resolution. **Lauren Saunders**

48 9:00 am Single-cell transcriptomic analysis of embryonic vasculogenesis identifies the conversion of Etv2-deficient vascular progenitors into skeletal muscle. **Saulius Sumanas**

49 9:15 am MicroRNA-mediated control of developmental lymphangiogenesis. **Brant Weinstein**

50 9:30 am Investigating interactions between the actin and microtubule networks in the yolk cell during zebrafish morphogenesis. **Haoyu Wan**

51 9:45 am Ectopic *kcnh2a* slows niche-to-mesenchyme transitions to prolong fin outgrowth and disrupt organ scaling of *longfin* zebrafish. **Kryn Stankunas**

Thursday, April 23
10:30 am - 12:30 pm
Woodrow Wilson A

New Technology and Resources in Development (*C. elegans)*

Session Chair:
Jordan Ward

52 10:30 am Lineage-specific analysis of proliferation-differentiation control in *C. elegans*. **Sander van den Heuvel**

53 11:00 am Cultivating relationships: genetics and genomics microbiome form and function. **Buck Samuel**

54 11:15 am Bicistonic tagging and severing (BiTS): a new gene editing tool in *C. elegans* using endogenous trans-splicing pathways. **Ryan Littlefield**

55 11:30 am Dietary serine enhances chemotherapeutic toxicity through altering the metabolism of the microbiota. **Wenfan Ke**

56 11:45 am A genetically-encoded rapid-response biosensor for Notch activity. **Justin Shaffer**

57 12:00 pm Rapid Self-Selecting and Clone Free Integration of Transgenes into Engineered CRISPR Safe Harbor Locations in *C. elegans*. **Megan Moerdyk-Schauwecker**

58 12:15 pm Driving with caution: lessons learned from TIR1 promoters and TIR1 receptor function. **Michael Martinez**

Thursday, April 23
10:30 am - 12:30 pm
Potomac A/B

Plenary Session and Larry Sandler Award Lecture (*Drosophila*)

Session Chair:
Helen McNeill

59 10:30 am Larry Sandler Award Presentation. **Barbara Mellone**

60 10:35 am Larry Sandler Award Talk

61 11:00 am Circuits Mechanisms of Learning and Decision-making in *Drosophila*. **Marta Zlatic**

62 11:30 am Sick and Tired: Circadian-regulated Functions and Disease. **Mimi Shirasu-Hiza**

63 12:00 pm Active genetics comes alive. **Ethan Bier**

Thursday, April 23
10:30 am - 12:30 pm
Potomac D/4-6

Chapman Lecture and Gene Regulation (Mammal)

Session Chairs:
Linda Siracusa
Steve Munger

64 10:30 am Genome-wide identification and analysis of single nucleotide variants disrupting RNA structure and function. **Zhengqing Ouyang**

65 10:45 am Structure and function of SWI/SNF complexes is regulated by RNA interactions. **Jesse Raab**

66 11:00 am Phase separation of YAP reorganizes genome topology for long-term YAP target gene expression. **Danfeng Cai**

67 11:15 am Mechanism of monoallelic expression and allelic rheostat role of DNA methylation. **Alexander Gimelbrant**

68 11:30 am Of mice and (wo)men and medicine: from tails to treatments. **Monica Justice**

Thursday, April 23
10:30 am - 12:30 pm
Cherry Blossom Ballroom

The Evolution of Gene Expression (PEQG)

Session Chair:
Daniel Matute

69 10:30 am Changes throughout a Genetic Network Mask the Contribution of Hox Gene Evolution. **Yang Liu**

70 10:45 am Simultaneous Quantification of mRNA and Protein Levels in Single Cells Reveals *Trans*-acting Genetic Variation. **Christian Brion**

71 11:00 am A mutagenesis survey of a developmental enhancer using automation and robotics reveals constraints on evolvability. **Timothy Fuqua**

72 11:15 am From Codons to Ecology – Using Codon Optimization as a Proxy for Gene Expression to Identify Ecologically Adapted Metabolic Pathways. **Abigail LaBella**

73 11:30 am Functional Divergence of Coding and Non-coding Changes in the Conserved Gap Gene *giant* in *Drosophila*. **Wenhan Chang**

74 11:45 am Massively parallel identification of *cis*-regulatory variants in yeast promoters. **Frank Albert**

75 12:00 pm Quantifying absolute changes in transcription and translation over 22 years of bacterial adaptation. **Premal Shah**

992B 12:15 pm A major role for noncoding regulatory mutations in the evolution of enzyme activity. **David Loehlin**

1004B 12:17 pm Transposable element accumulation reduces fitness in maize. **Michelle Stitzer**

1352B 12:19 pm Testing the omnigenic model for a morphological trait in *Drosophila melanogaster*. **Wenyu Zhang**

1287C 12:21 pm The *cis*-regulatory effects of modern human-derived fixed substitutions on gene expression. **Carly Weiss**

1148B 12:23 pm The Dynamics of CNV Evolution in Fluctuating Environments. **Farah Abdul-Rahman**

1296C 12:25 pm Estimating the protein burden limit of yeast cells by measuring the expression limits of glycolytic proteins. **Yuichi Eguchi**

Thursday, April 23
10:30 am - 12:30 pm
Chesapeake A-C

Disease Models (*Xenopus*)

Session Chair:
Amy Sater

76 10:30 am *Importance innate-like T cells in tolerance versus resistance to virus and mycobacteria in Xenopus*. **Jacques Robert**

77 10:50 am *Xenopus tropicalis* mutation in the transcription factor *six3* reveals its key role in controlling the eye gene regulatory network. **Robert Grainger**

78 11:10 am The mechanisms of neural crest defects in DDX3X syndrome and related genetic diseases. **Shuo Wei**

79 11:30 am Modeling Li-Fraumeni Mutations in *Xenopus laevis*. **Amisheila Kinua**

80 11:45 am The CLEAR consortium: elucidating the genetic and cellular basis of trachea-esophageal birth defects. **Nicole Edwards**

81 12:00 pm What disease can tell us about the role of Sox11 in development of *Xenopus laevis'* CNS? **Pablo Silva Rodriguez**

82 12:15 pm Identification of novel candidate genes associated with SIX1 and Branchio-oto-renal syndrome. **Andre Tavares**

Thursday, April 23
10:30 am - 12:30 pm
Woodrow Wilson Ballroom B-D

Gene Regulation (Yeast)

Sponsored by Inscripta

Session Chairs:
Anne Spang
Stan Fields

83 10:30 am Lee Hartwell Lecture: Higher order chromosome structure in yeast, an informative oxymoron then and now. **Douglas Koshland**

84 11:00 am Control of the nucleo-cytoplasmic localization of the yeast mRNA decapping complex. **Anne Spang**

85 11:15 am A stress response allows highly mutated eukaryotic cells to survive and proliferate. **Rebecca Zabinsky**

86 11:30 am Spt6 recruits Paf1C to transcribed regions via a direct interaction with Cdc73 in *Saccharomyces cerevisiae*. **Mitchell Ellison**

87 11:45 am ER stress sensor Ire1 deploys a divergent transcriptional program in response to lipid bilayer stress. **Guillaume Thibault**

88 12:00 pm Generating new orthogonal tRNA and aminoacyl-tRNA synthase pairs in yeast to engineer translation. **Stephanie Zimmerman**

2252B 12:14 pm Zippers and Stitches in the Meiotic Nucleus. **Amy MacQueen**

2231B 12:16pm A histone chaperone involved in DNA damage repair. **Walla Disbennett**

2251A 12:18 pm Multiple end-invasion, branch migration and resolution associated processing are hallmarks of meiotic recombination. **Jasvinder Ahuja**

948C 12:20pm Systematically validated, genome-scale inference of quantitative regulatory networks and condition-specific TF activities. **Cynthia Ma**

2247C 12:22pm Activating telomeric origins is not sufficient to increase telomere length in *S. cerevisiae*. **Calla Shubin**

925A 12:24pm Determining how promoter architecture contributes to Pol II initiation by scanning in *Saccharomyces cerevisiae*. **Yunye Zhu**

927C 12:26 pm Post-transcriptional Regulation by *S. cerevisiae* Rny1p in the Post-Diauxic Phase. **Jennifer Garcia**

922A 12:28pm Single-Molecule Studies of transcription of *CUP1* locus in yeast *Saccharomyces*. **Gunjan Mehta**

Thursday, April 23
10:30 am - 12:30 pm
Maryland C

Neurogenetics (Zebrafish)

Session Chairs:
Adam Miller
Celia Shiau

89 10:30 am Retinoic acid organizes the vagus motor topographic map via spatiotemporal regulation of Hgf/Met signaling. **Adam Isabella**

90 10:45 am Abnormal neuronal positioning affects circuit function in zebrafish. **Emilia Asante**

91 11:00 am The autism- and epilepsy-associated gene Neurobeachin regulates electrical synapse formation via interactions with an intracellular synaptic scaffold. **Anne Martin**

92 11:15 am Identifying proteins that bind Hmx3a and testing their roles in spinal cord development. **William Haws**

93 11:30 am Inflammatory signaling regulates neurofibromin 1 (*nf1*)-dependent habituation learning in larval zebrafish. **Andrew Miller**

94 11:45 am Dolk regulates motor behaviors through the episodic ataxia-associated protein Kv1.1. **Joy Meserve**

95 12:00 pm Fishing for function in the evolutionary gene pool: a zebrafish model for human-specific duplicated gene *SRGAP2*. **Jose Uribe-Salazar**

96 12:15 pm E4bp4-2b/Nfil3-2b contributes to circadian regulation by repressing *cryptochrome1aa* and *period2* expression via the D-box enhancer. **Han Wang**

Thursday, April 23
10:30 am - 12:30 pm
Maryland A

Biotech Pipeline

Sponsored by Calico

Session Chair:
Kailene Simon

This session will highlight some exciting discoveries that advanced from basic research to the marketplace. Attendees will hear how discoveries involving genetic technologies that originated in academic labs moved through the industry pipeline for product development and practical application. This session will consist of talks from industry professionals, followed by a panel discussion featuring the speakers.

97 10:30 am Divalent siRNA Scaffold for Robust Gene Modulation in the Central Nervous System. **Julia Alterman**

98 10:50 am Rapid preclinical and clinical development of AG10, a novel, potent, and selective oral transthyretin stabilizer. **Alan Ji**

99 11:10 am NemaMetrix: cutting-edge genome editing and phenotyping tools in *C. elegans* and zebrafish and how we've targeted parasitic worms. **Janis Weeks**

100 11:30 am Developing Novel Gene Therapies to Treat Orphan Inherited Retinal Diseases. **Abraham Scaria**

101 11:50 am Cerebral glucose uptake: Gene therapy at the blood brain barrier. **Smitha Jagadish**

12:10 pm Discussion

Thursday, April 23
1:45 pm - 3:45 pm
Cherry Blossom Ballroom

The Architectures of Complex Traits

Session Chair:
Kelley Harris

102 1:45 pm Negative selection on complex traits limits genetic risk prediction accuracy between populations. **Arun Durvasula**

103 2:00 pm Comprehensive dissection of complex traits using a panel of 250,000 barcoded diploid yeast segregants. **Takeshi Matsui**

104 2:15 pm Latent phenotypic complexity of adaptation in a single environment. **Grant Kinsler**

105 2:30 pm Resolving the genetic basis of simple and complex traits using outbred Hybrid Swarm mapping populations. **Cory Weller**

106 2:45 pm BFDR: a powerful and safe Bayesian Decision Rule for FDR-control in GWA studies. **Gustavo de los Campos**

107 3:00 pm Differential complex trait architecture across humans: epistasis identified in non-European populations at multiple genomic scales. **Michael Turchin**

108 3:15 pm Extent and context dependence of pleiotropy revealed by high-throughput single-cell phenotyping. **Kerry GeilerSamerotte**

1057A 3:30 pm The Maintenance of Polygenic Disease via Mutation-Selection Balance. **Jeremy Berg**

1324A 3:32 pm Dissecting the Genetic Basis of Thermal Tolerance in a Multi-Parental Population of Fruit Flies. **Patricka Williams-Simon**

1326C 3:34 pm Loss of predictive power of polygenic risk scores in admixed populations. **Barbara Bitarello**

1327A 3:36 pm Mapping the Genetic Architecture of Ubiquitin-Proteasome System Activity. **Mahlon Collins**

1128C 3:38 pm Predicting the Genomic Resolution of Bulk Segregant Analysis. **Runxi Shen**

1335C 3:40 pm Variation in HOG and cAMP-PKA Signaling Pathways Underlies the Genetic Architecture of Multiple Virulence Traits in *Cryptococcus*. **Cullen Roth**

Thursday, April 23
1:45 pm - 3:45 pm
Woodrow Wilson A

Diversity, Equity, and Inclusion Session

Session Chair:
Nadia Singh

109 1:45 pm Inclusive PhD admissions: An evidence-based self-education process for faculty, staff and trainees. **Scott Barolo**

110 2:00 pm The Diversity Preview Weekend: A graduate student-led initiative to promote diversity, equity and inclusion in higher education. **Andrea Darby**

111 2:15 pm Building a trainee-driven movement to implement the NASEM sexual harassment recommendations in an academic research lab environment. **Emma Alme**

112 2:30 pm Near-Peer Mentoring: Bridging the gap between the ideas and realities of academic success in STEM for traditionally under-represented students (TURS). **Torey Jacques**

113 2:45 pm Bridging Worlds for Diversity and Inclusion: Social Science with Biology Education Research Through the iEMBER Network. **Gary McDowell**

114 3:00 pm Inclusion of cultural dietary practices in genetics research diversifies the scientific workforce and addresses health disparities. **Jennifer Alexander**

115 3:15 pm For Us, By Us, but Not *All of Us*: building our own Indigenous biobank as a better way to ensure research equity. **Krystal Tsosie**

486C 3:30 pm Expanding student access to science careers by cultivating local networks. **Andrew Arsham**

487A 3:32 pm Enhancing inclusion of diverse students by training future educators. **Frederick Boehm**

492C 3:34 pm Demystifying race and skin color by consideration of scientific history and the relationships between group-centrism and skin color as complex phenotypes. **Keith Cheng**

488B 3:36 pm Addressing the Threat in the Air: Reducing stereotype threat in science environments. **Audrey Parangan-Smith**

485B 3:38 pm Understanding our scientific past: What became of eugenics course offerings? **Rori Rohlfs**

489C 3:40 pm How can genetics instructors use culturally relevant pedagogy to reframe racially biased curricula? **Rachel Sparks**

Thursday, April 23
1:45 pm - 3:45 pm
Potomac D/4-6

Chromatin and Transcription

Session Chair:
Karen Arndt

116 1:45 pm Directing cell specific gene expression: Nucleosome dynamics and core promoters. **Katia Jindrich**

117 2:00 pm RSC readies the quiescent genome for rapid hypertranscription. **Christine Cucinotta**

118 2:15 pm How cell size controls genome activation and orchestrates fate decisions. **Hui Chen**

119 2:30 pm Direct Quantification of Gene Regulation by Transcription-Factor Binding at an Endogenous Gene Locus. **Heng Xu**

120 2:45 pm Quantitative analysis of transcription factor binding and expression using calling cards reporter arrays. **Jiayue Liu**

121 3:00 pm Transcription rate modulation by network-level feedback promotes robust patterning outcomes. **Shawn Little**

122 3:15 pm Shadow enhancers can suppress input transcription factor noise through distinct regulatory logic. **Rachel Waymack**

123 3:30 pm Context dependent transcriptional regulation of lysosomal lipolysis in *C. elegans*. **Anna Drangowska-Way**

Thursday, April 23
1:45 pm - 3:45 pm
Maryland A

Developmental Genetics: The Germline

Session Chairs:
Kari Lenhart
Kellee Siegfried

124 1:45 pm *chinmo*-mutant germline stem cells cause biased inheritance by fencing off the niche and evicting their neighbors. **Chen Yuan Tseng**

125 2:00 pm Stem cell niche exit in *C. elegans* via orientation and segregation of daughter cells by a cryptic cell outside the niche. **Kacy Gordon**

126 2:15 pm Sex-specific ecdysone signaling is established by Doublesex to regulate gonad stem cell niche development. **Lydia Grmai**

127 2:30 pm Axon-like projections direct the self-renewal versus differentation cell fate decision in Follicle Stem Cells of the Drosophila ovary. **Alana O'Reilly**

128 2:45 pm Novel LOTUS-domain proteins recruit *C. elegans* Vasa to germ granules and are essential for developmental switches in the germline. **Patricia Giselle Cipriani**

129 3:00 pm Courtship is a two-way conversation: Yeast mating as a model of cell-cell communication. **Manuella Clark-Cotton**

130 3:15 pm GCNA interacts with Spartan and Topoisomerase II to regulate genome stability. **Michelle Carmell**

131 3:30 pm Extraordinary diversity of sex chromosomes in African cichlid fishes. **Thomas Kocher**

Thursday, April 23
1:45 pm - 3:45 pm
Maryland C

Modeling Human Diseases in Diverse Systems

Session Chair:
Clare Smith

132 1:45 pm A muscle-to-oenocyte Pvf1 signaling axis protects against obesity. **Arpan Ghosh**

133 2:00 pm Directed evolution of the *Drosophila* microbiome to extend lifespan. **Matthew Ulgherait**

134 2:15 pm Tell me how to go: The migration mechanisms of cell dissemination in vivo. **Alejandra Cabrera**

135 2:30 pm Multidisciplinary Analysis of patient-specific genetic interactions reveal a role for *Megalin* / *LRP2* in Hypoplastic Left Heart Syndrome. **Georg Vogler**

136 2:45 pm Investigating stage dependent immune tolerance to heterologous cells for the purpose of creating humanized zebrafish. **Anna Zdunek**

137 3:00 pm The *C. elegans* model organism screening center for the NIH Undiagnosed Disease Network. **Tim Schedl**

138 3:15 pm SCO-spondin defects and neuroinflammation identified as conserved mechanisms driving severe spine deformity across genetic models of idiopathic scoliosis. **Brian Ciruna**

139 3:30 pm Mouse models predict drug combinations to target oncogenes and tumor suppressors. **Tyler Peat**

Thursday, April 23
4:00 pm - 5:30 pm
Potomac D/4-6

Visualizing Intracellular Dynamics

Session Chair:
Jessica Feldman

140 4:00 pm Visualizing the metazoan proliferation-differentiation decision *in vivo*. **Rebecca Adikes**

141 4:15 pm NudC phosphorylation silences dynein to promote anterograde cargo transport in axons. **Katie Drerup**

142 4:30 pm RNA nucleates phase separation of glycolysis enzymes in yeast in hypoxia. **Gregory Fuller**

143 4:45 pm Degron-tagged reporters probe membrane topology and enable the specific labelling of membrane-wrapped structures. **Ann Wehman**

144 5:00 pm Evolution within the organism: Survival of the fittest mitochondria and cells. **Pei-I Tsai**

145 5:15 pm Cell competition regulates tissue growth and tumorigenesis via non-autonomous induction of autophagy. **Rina Nagata**

Thursday, April 23
4:00 pm - 5:30 pm
Potomac A/B

New Technology and Systems Biology

Session Chair:
Miler Lee

146 4:00 pm Programming high-order combinatorial genetics with Cas9-mediated gene drive approach for cellular engineering. **Xiaoge Guo**

147 4:15 pm Systematic humanization of yeast processes to understand human biology and disease. **Aashiq Kachroo**

148 4:30 pm MAGIC: Mosaic Analysis by gRNA-Induced Crossing Over. **Sarah Allen**

149 4:45 pm A Multiplexed CRISPR Screen for Essential microRNA-Target Interactions in C. elegans. **Katherine McJunkin**

150 5:00 pm CRISPR-Cas13d induces efficient mRNA knock-down in animal embryos. **Gopal Kushawah**

151 5:15 pm A Catalog of Polymorphic SINEC_Cf Insertions in the Dog Genome. **Jessica Choi**

Thursday, April 23
4:00 pm - 5:30 pm
Maryland A

Undergraduate Session

Session Chairs:
Rob Ward
Julie Hall
Nicole Green

152 4:00 pm Undergraduate Platform Keynote Address. **Elaine Fuchs**

153 4:30 pm Characterizing protein aggregates in NUAK mutants using the *Drosophila* muscle tissue model. **Marta Stetsiv**

154 4:45 pm Alternative *mec-2* isoforms exhibit neuron type-specific expression and function. **Canyon Calovich-Benne**

155 5:00 pm Distinguishing Between Self and Foreign siRNA in the *C. elegans* Germline. **Diljeet Kaur**

156 5:15 pm PRISM-stop targeted integration in *aquaporin1a1* and *1a2* reveals a requirement during vascular morphogenesis. **Jacklyn Levey**

Thursday, April 23
4:00 pm - 5:30 pm
Cherry Blossom Ballroom

Crow Award Talks (PEQG)

Session Chair:
Bret Payseur

157 4:00 pm Introduction to James Crow. **Bret Payseur**

158 4:15 pm Natural selection on the *Arabidopsis thaliana* genome in present and future climates. **Moises Exposito-Alonso**

159 4:30 pm Quantifying selection on heritable variation in human complex traits. **Yuval Simons**

160 4:45 pm Recombination, variance in genetic relatedness, and selection against introgressed DNA. **Carl Veller**

161 5:00 pm Predicted shifts in dominance increase the likelihood of soft selective sweeps. **Pavitra Muralidhar**

162 5:15 pm Adaptive evolution at a meiosis gene mediates species differences in the rate and patterning of recombination. **Cara Brand**

Thursday, April 23
4:00 pm - 5:30 pm
Maryland C

Reproducibility for Everybody

Rigor and reproducibility are at the core of modern science and set apart scientific inquiry from pseudoscience. Several new initiatives and tools have been established to address barriers to reproducibility. While very welcome, these projects have led to a proliferation of online tools and resources which can be hard to sift through. This workshop will introduce you to reproducible workflows and a range of tools along the themes of organization, documentation, analysis, and dissemination. After a brief introduction to the topic of reproducibility, the workshop will provide specific tips and tools useful in improving your daily research workflows. This will include the 101 of all data handling, wet lab protocol sharing platforms, documentation of code using notebooks, workflow systems, and version control, best practices for plotting of small data sets and reagent sharing platforms. This will help you to share your work with your future self, your immediate colleagues and the wider scientific community.

Thursday, April 23
4:00 pm - 5:30 pm
Maryland 1-2

The Ins and Outs of NIH Peer Review

Thursday, April 23
5:45 pm - 6:30 pm
Potomac A/B

Gruber Genetics Prize Presentation

Presentation of the 2020 Gruber Genetics Prize and Rosalind Franklin Young Investigators Awards.

Bonnie Bassler (HHMI/Princeton University) will deliver the 2020 Gruber Genetics Prize Lecture: Quorum-sensing communication: from viruses to bacteria to eukaryotes

Friday, April 24

8:00 am - 10:00 am
Maryland A

Genetic Technology in Practice

Sponsored by DuPont and Zymergen

This two-hour session will feature talks about how genetic technology is being put into practice. Topics will include synthetic biology, agricultural technologies, crop and livestock improvement, and drug discovery.

163 8:00 am Fungal genetics and automated strain engineering at Zymergen. **Kenneth Bruno**

164 8:20 am Making the most of our molecules - a computational framework for unified germplasm characterization and inference. **Eli Rodgers-Melnick**

165 8:40 am Using Bioinformatics and High Throughput Functional Genomics RNAi Approaches to Develop Safe and Sustainable Agricultural Products. **Chris Lawrence**

166 9:00 am High Yield and Robust *Saccharomyces cerevisiae* Strains for Biofuel Industry. **Celia Payen**

167 9:20 am From Barn to Bedside - Genome Editing in Livestock for Food and Biomedicine. **Tad Sonstegard**

9:40 am Discussion

Friday, April 24
8:00 am - 10:00 am
National Harbor 6/7

Mitochondrial Genetics

Selective transmission of mitochondrial genomes influences health, disease phenotypes and guides mitochondrial evolution. In this workshop, we will explore how the nucleus manages mitochondrial genome competition to gain insights on transmission of mtDNAs, mitochondrial quality control mechanisms, development of disease and aging phenotypes and mitonuclear incompatibilities. By combining technology and research approaches from multiple model systems, the goals of the workshop are to identify research challenges and productive approaches to advance our understanding of genetic interactions between nuclear and mitochondrial genomes.

Friday, April 24
8:00 am - 10:00 am
Maryland 1-2

Genetic Puzzles

The dogma of DNA makes RNA makes protein while of course still valid does not begin to describe the complexity of life. Multiple feedback loops operate at every level of gene and regulation and protein function. This workshop will focus on non-traditional genetic phenomena including transgenerational inheritance, genetic compensation and transcriptional adaptation.

8:00 am Introduction: **Didier Stainier** and **Julie Claycomb**

8:05 am **Julie Claycomb**, University of Toronto, Untangling the tentacled of the *C. elegans* Argonaute family

8:20 am **Rebecca Moore** (PhD Student, Murphy Lab), Princeton University, *C. elegans* uses bacterial small RNAs and RNA interference to interpret the microbiome

8:35 am **Xin Chen** (Rajesh Ranjan, Postdoc), Johns Hopkins University, Investigate how asymmetric epigenetic information is established in multicellular organisms

8:50 am **Giovanni Bosco**, Dartmouth Geisel School of Medicine, Neuromodulation and reprogramming of germline cell in *Drosophila*

9:05 am **Jay B. Hollick**, The Ohio State University, Paramutation

9:20 am **Satyaki Rajavasireddy** (Postdoc, Gehring Lab), Whitehead Institute, Massachusetts Institute of Technology, Antagonistic parental regulation of zygotic development: a small RNA view from seeds

9:35 am Didier Stainier, Max Planck Institute for Heart and Lung Research, Genetic compensation and transcriptional adaptation

9:50 a.m. General discussion

Friday, April 24
8:00 am - 10:00 am
Maryland C

Cell-Cell Signaling Across the Kingdoms

Cells in multicellular organisms communicate using processes that define space and time to produce genetically encoded patterns. They do this with remarkable reproducibility and precision. Recent studies of Drosophila, zebrafish, mammalian cell, nematode, and plant systems have revealed fascinating signaling mechanisms that make these creations possible. The defining features and commonalities of signaling in these systems will be explored and discussed in this workshop.

Friday, April 24
8:00 am - 10:00 am
Annapolis 1-2

BREW: Bridging Research and Education Workshop

BREW 2020 workshop will focus BREWING KITS - access to materials and best practices to increase practical implementation of research-based experiences in the training and education of undergraduates. This workshop will focus on budding yeast as a model organism approach to undergraduate education, but will include approaches and course design tools that could be applied a multitude of systems and levels of education.

Friday, April 24
8:00 am - 10:00 am
National Harbor 4/5

Science Communication: Challenges and Impact

Science is about generating and sharing new knowledge. In this workshop, we will address the importance of broad communication and outreach in conveying scientific knowledge to society at large. The workshop will begin and end with group discussions led by panelists with diverse backgrounds united by engagement in outreach activities with general audiences. In between, participants will use a Speed Dating format to brainstorm scientific communication successes and challenges, getting and giving feedback on issues they have encountered. Overall, participants will develop communication skills for scientific activities and learn about engagement opportunities in outreach initiatives.

Friday, April 24
8:00 am - 10:00 am
Annapolis 3

Education Research: Collecting Evidence and Publishing Findings

This workshop is designed to help those interested in assessing student learning, attitudes, or the impact of instructional interventions. We will provide resources that can be used to measure such changes, and help participants think about and design ways of collecting evidence in their classrooms. In addition, we will provide information about sharing one's work, when one needs human subjects approval, what is generally required for different kinds of publications, and how to ensure a publication will reach the right audience.

Friday, April 24
8:00 am - 10:00 am
Maryland D

Everything You Ever Wanted To Know about Sex

The workshop will cover the molecular genetics, development, neurobiology, genomics, evolution, and population genetics of sexual dimorphism, with an emphasis on fostering the exchange of knowledge and development of collaborations necessary for building crossdisciplinary and cross-organism research communities. Presentations by four invited speakers working in *Drosophila*, nematode, zebrafish, and mammalian models will be followed by selected flash talks from early career researchers.

8:00 am Opening Remarks

8:03 am **Douglas Portman**, University of Rochester, Sexual state in *C. elegans*: Binary and static, or flexible and dynamic?

8:21 am **Didem P. Sarikaya**, University of California Davis, Sex-specific traits: from cells to systems.

8:39 am **Kellee Siegfried**, University of Massachusetts Boston, The zebrafish *dmrt* gene family: roles in sex-determination and gonad development.

8:57 am **Daniel Wilson Bayless**, Stanford, A sexually dimorphic neural circuit for sex/mate recognition in mice.

9:15 am **Chen Wang**, Columbia University, Expression and functional studies of the DM-domain transcription factors reveal novel sexual dimorphisms.

9: 22 am **Lydia Grmai**, Johns Hopkins University, Sex-specific ecdysone signaling is established by Dsx to regulate gonad stem cell niche development.

9:29 am **Huangyi He**, Zhejiang University, Evolution and development of *Drosophila* sperm heteromorphism.

9:36 am **Erica Nadolski**, The University of Oklahoma, The genetics of sex-specific reproductive traits in *Drosophila*.

9:43 am **Kiran Adhikari**, University of Houston, Temperature-dependent phenotypic effects of house fly proto-Y chromosomes explain the maintenance of polygenic sex determination in natural populations.

9:50 am **Nipun Basrur**, The Rockefeller University, Sexual dimorphism in mosquito behavior.

9:57 am Closing Remarks

Friday, April 24
8:00 am - 10:00 am
Baltimore 3-5

Bioethics and Education

Part I. CRISPR-based technologies: the ethical dimension of precision genome engineering

CRISPR/Cas9 and associated technologies are transforming the speed at which new genetically modified models for research are being generated, for example for precision medicine initiatives. During this session, a combination of a panel and small groups will discuss scenarios which highlight animal ethics considerations that researchers and ethical review bodies should think about concerning these technologies. We will use cell phone apps to gauge attendee responses and provide feedback on these questions. This anonymised data will be circulated to attendees and will also be the basis for the production of a harm-benefit guidance document for the animal model community.

Part II. Raising a Woke Generation of Geneticists: How and Why to Include Eugenics History in Genetics Classes

This workshop is for everyone who teaches undergraduate and graduate genetics and is concerned about eugenics in the modern era. Whether you already discuss eugenics in class or don't know where to start, bring your ideas and questions to the workshop! We will review the history of eugenics and share educational strategies that have worked and failed. We will break out to tackle specific challenges, such as creating safe spaces for students to learn from each other, assessing student learning outcomes, and how to discuss the ethics of GWA studies of complex human traits including intelligence and sexual orientation.

Friday, April 24
8:00 am - 10:00 am
National Harbor 2/3

The Geometry of Life, Computational Phenomics, and the Reunification of Biology

The cellular basis of all life makes microscopy a useful tool for studying phenotype at the cellular and tissue levels, sampling error and distortion are common, making assessments largely qualitative, subjective, and incomplete. Quantitative cell and tissue phenotyping ideally includes volumetric, shape, and texture features of cells, tissues, and whole organisms, based on a knowledge of normal phenotypic variation. This workshop addresses these issues and considers the question: What would an ideally-defined geometry of life for all organisms look like, and how soon can we make complete, quantitative morphological cellular and tissue phenotyping accessible to all scientists and the public?

Friday, April 24
8:00 am - 10:00 am
Maryland B

Metabolic Plasticity – Exploring the Flexibility of Metabolic Networks in the Context of Development, Evolution, Environmental Stress, and Disease

The metabolism of all organisms must adapt to changes in nutrient availability, environmental stress, and the energetic demands of growth and reproduction. This phenomenon of metabolic plasticity imparts robustness on biological systems and allows organisms to thrive in a variety of environmental conditions. Therefore, the mechanisms that control plasticity in metabolic flux are of broad interest to anyone who studies developmental biology, evolution, and models of human disease. The goal of this workshop is to foster a collaborative atmosphere in which scientists from all GSA communities can discuss the mechanisms that regulate and buffer metabolic networks.

Friday, April 24
8:00 am - 10:00 am
National Harbor 12/13

Chemoreception, Physiology and Social Behavior: A Genetic Perspective

Chemoreception, including taste and smell, plays a critical role in fundamental physiology and behavior. Over the past several years, tremendous progress has been made towards understanding the chemosensory mechanisms underlying complex physiology and behaviors in genetically tractable model organisms, such as flies, ants, and worms. In this proposed workshop, the speakers will present their work on the receptors and signaling molecules dedicated to gustatory or olfactory perception in flies, ants, and worms. Moreover, the speakers will discuss the use of genetic model organisms to provide novel insights into chemosensory regulation of metabolism, aging and social behaviors.

Hua Yan, University of Florida - Olfaction and social behavior in Ants

John Mack, Monell Chemical Senses Center, University of Pennsylvania - Molecular and cellular basis of taste coding in Drosophila

Shawn Xu, Life Sciences Institute, University of Michigan - Chemosensation and aging in *C. elegans*
Time: 20 min (15 minutes + 5 minutes Q&A)

Yangkyun Oh, Skirball Institute of Biomolecular Medicine, New York University - A pair of glucose-sensing neurons regulate glucose homeostasis by coordinating the release of insulin and glucagon in *Drosophila*

Roundtable discussion

Friday, April 24
8:00 am - 10:00 am
Baltimore 1/2

Cultivating Communities: Making Sense of Host-Microbiome Interactions Through the Lens of Genetics

Across phylogeny microbes forge relationships with their hosts and exert considerable influence on their physiology, development and predisposition to disease. The genetic pathways that underlie these relationships are likely to represent both ancient and host specific approaches to microbiome regulation. Thus, a community-wide effort is needed to comprehensively define the molecular connections that link us (and our host proxies) to the fates of our microbes. This workshop aims to highlight the use of highly tractable systems and population-based studies to advancing genetic understanding of microbiome regulation and spur engagement across these robust research.

Buck Samuel, Baylor College of Medicine, Natural variation in host genetics shape form and function of the *C. elegans* gut microbiome

Nichole Broderick, Johns Hopkins University, Using a fly model to understand host-microbe interactions

Travis Wiles, University of Oregon, What Zebrafish can show us about how animals shape the intestinal ecosystem

Emily Davenport, Pennsylvania State University, Using human genetics to understand the physiological basis of host microbiome interactions

Federico Rey, University of Wisconsin-Madison, A systems genetics approach to dissect microbe-host interactions

Kevin Kohl, University of Pittsburgh, Comparative approaches for understanding assembly of the gut microbiome

Cara Haney, University of British Columbia, Genomics of plant-microbiome interactions

Small group breakout sessions

General group discussion

Friday, April 24
8:00 am - 10:00 am
National Harbor 10/11

Single Cell Approaches in Animal Development

We can now measure gene expression and other phenotypes in the fundamental unit of organisms: the single cell. Single cell RNA sequencing and other single cell approaches routinely produce scalable and quantitative genome-wide data in almost any organism. In this workshop, experts in single-cell approaches will discuss the present and future of this technology, including how to mine existing large-scale datasets, a summary of the latest approaches, and how to integrate these approaches into your own work.

Friday, April 24
10:30 am - 12:30 pm
Woodrow Wilson A

Genomics, Gene Regulation, and Systems Biology *(C. elegans)*

Session Chair:
Florian Steiner

168 10:30 am The Argonaut NRDE-3 and MET-2 redundantly target SET-25 to full length transposable elements. **Susan Gasser**

169 11:00 am Regulation of alternative splicing in tissues and distinct neuronal subtypes in *C. elegans*. **John Calarco**

170 11:15 am A temporally regulated switch from non-canonical to canonical Wnt signaling stops QR descendant migration through a Slt/Robo and RGA-9/RhoGAP dependent mechanism. **Erik Schild**

171 11:30 am Repressive H3K9me2 protects lifespan against the transgenerational burden of germline transcription in *C. elegans* . **Teresa Lee**

172 11:45 am *In vivo* regulation of an X-specific condensin's binding dynamics in *C. elegans*. **Sevinc Ercan**

173 12:00 pm A neuronal thermostat controls membrane fluidity in *C. elegans*. **Olivia Casanueva**

769A 12:15 pm The RAB-6.2 GTPase is a novel regulator of small RNAs and Ras in *C. elegans*. **Sarah Gagnon**

2173A 12:17 pm Meiotic DSB processing and crossover formation are differentially regulated in *Caenorhabditis elegans* spermatogenesis versus oogenesis. **Qianyan Li**

2175C 12:19 pm *Caenorhabditis elegans* DSB-3 Cooperates with DSB-1 and DSB-2 to Promote Meiotic Double-Strand Break Formation. **Albert Hinman**

1399A 12:21 pm Binucleated polyploid cells ensure efficient transcription and reproductive fitness in *C. elegans*. **Lotte van Rijnberk**

760A 12:23 pm A Neuronal Atlas of RNA-Binding Protein Expression and Localization at Single-Cell Resolution. **John Laver**

740B 12:25 pm The Vasa DEAD-box helicase GLH-1 promotes differential translation of sperm genes. **Jesse Rochester**

Friday, April 24
10:30 am - 12:30 pm
Potomac C/1-3

Disease Models and Aging (*Drosophila*)

Session Chairs:
Nancy Bonini
Heinrich Jasper
Lindsey Goodman

174 10:30 am Epithelial homeostatic mechanisms prevent tumorous overgrowth by causing the extrusion of RasV12 expressing clones. **Jamie Lahvic**

175 10:45 am Polyploidy in the adult *Drosophila* brain. **Shyama Nandakumar**

176 11:00 am A Drosophila model of Kras/Lkb1 tumorigenesis uncovers oncogenic Kras levels as a key determinate in malignant transformation. **Melissa Gilbert-Ross**

177 11:15 am Resolving the contribution of the microbiome in aging. **Arvind Shukla**

178 11:30 am YAP/TAZ transcription co-activators create therapeutic vulnerability in EGFR mutant glioblastoma. **Renee Read**

179 11:45 am Tumors kill hosts through inflammatory disruption of the blood-brain barrier in Drosophila. **Jung Kim**

180 12:00 pm Occluding Junction Modulation in Aging and Disease. **Anna Salazar**

181 12:15 pm The insulin-like peptide Dilp6 is a key factor to inhibit growth in *Drosophila* in response to Toll signaling. **Miyuki Suzawa**

Friday, April 24
10:30 am - 12:30 pm
Potomac A/B

Genomics/Systems Biology and Gene Regulation (*Drosophila*)

Session Chairs:
Melissa Harrison
Daniel McKay
Brent Graveley
Stein Aerts

182 10:30 am OVO-B, but not OVO-A, is required for female germ cell viability and has downstream targets in addition to *otu* in the female germline. **Leif Benner**

183 10:45 am Genome activation and transcriptome diversity: A dual sex-specific role for the *Drosophila* Clamp protein in splicing and transcription during early embryonic development. **Mukulika Ray**

184 11:00 am Transcribing loci in close proximity do not share a Pol II hub. **Shao-Kuei Huang**

185 11:15 am Tissue-specific chromatin occupancy by the pioneer factor Zelda in *Drosophila melanogaster*. **Elizabeth Larson**

186 11:30 am Sex-dependent and sex-independent controls of size variation in natural populations. **Hirokazu Okada**

187 11:45 am Spatial Structure of the *Drosophila* Gut Microbiome. **Ren Dodge**

188 12:00 pm A functional investigation of conserved cryptic peptides encoded by smORFs identifies two novel mitochondrial components. **Justin Bosch**

189 12:15 pm Evolutionary conservation and divergence of 3D genome organization in *Drosophila*. **Nicole Torosin**

Friday, April 24
10:30 am - 12:30 pm
Potomac D/4-6

Genomics and Systems Biology (Mammal)

Session Chairs:
Laura Reinholdt
Xavier Warot

190 10:30 am Modeling gene x treatment effects in the Collaborative Cross and other replicable multiparent populations. **William Valdar**

191 10:45 am Genetic dissection of initial cocaine sensitivity and behavioral sensitization using the Collaborative Cross and Diversity Outbred mouse populations. **Sarah Schoenrock**

11:00 am IMGS Trainee Symposium Selected Presentation

192 11:15 am the genetic architecture of insulin secretion. **Gary Churchill**

11:30 am IMGS Trainee Symposium Selected Presentation

193 11:45 am Controlling phenotypic variability and reproducibility through characterization and stable control of the microbiome in mouse models. **James Amos-Landgraf**

194 12:00 pm Sex-specific evolution of the genome-wide recombination rate in house mice. **April Peterson**

195 12:15 pm Reference quality mouse genomes reveal complete strain-specific haplotypes and novel functional loci. **Mohab Helmy**

Friday, April 24
10:30 am - 12:30 pm
Cherry Blossom Ballroom

Adaptation in Natural Populations (PEQG)

Session Chair:
Felicity Jones

196 10:30 am The genetic origin and evolutionary history of aposematic coloration in *Phyllobates* poison frogs. **Roberto Márquez**

197 10:45 am A chromosomal inversion underlies forest adaptations in deer mice. **Olivia Meyerson**

198 11:00 am RNAi pathways repress reprogramming of *C. elegans* germ cells during heat stress. **Alicia Rogers**

199 11:15 am The making of the monarch: A constrained adaptive path to toxin resistance. **Marianthi Karageorgi**

200 11:30 am Human isolates of *S. cerevisiae*: colonization, pathogenicity, and in-host microevolution viewed through domestication history. **Walter Pfliegler**

201 11:45 am Learning the properties of adaptive regions with functional data analysis. **Mehreen Mughal**

202 12:00 pm Genome-wide association study (GWAS) of bleaching tolerance in a Great Barrier Reef coral. **Zach Fuller**

1011C 12:15 pm Inferring parameters of selective sweeps through supervised learning. **Ian Vasconcellos Caldas**

1023C 12:17 pm Gene duplication mediates resistance to cardiac glycosides in a lineage of Neotropical frogs. **Shabnam Mohammadi**

1082B 12:19 pm Stronger and higher proportion of beneficial amino acid changing mutations in humans compared to mice and *Drosophila*. **Ying Zhen**

1258A 12:21 pm Genetic basis of de novo appearance of carotenoid ornamentation in bare-parts of canaries. **Malgorzata Gazda**

998B 12:23 pm Weird gene in a weird mammal: A highly divergent pancreatic duodenal homeobox 1 (*Pdx1*) gene in the fat sand rat. **Yichen (Serena) Dai**

1046B 12:25 pm Examining the role of pleiotropy in the evolution of the cavefish *Astyanax mexicanus*. **Johanna Kowalko**

Friday, April 24
10:30 am - 12:30 pm
Chesapeake A-C

Cell Fate and Patterning (*Xenopus*)

Session Chair:
Jacques Robert

203 10:30 am Deep cytoplasmic sorting during *Xenopus* oocyte-to-embryo transition. **Jing Yang**

204 10:50 am Membrane potential determines the exit from pluripotency and the ontogeny of cell fate. **Mustafa Khokha**

205 11:10 am Precise regulation of retinoic acid levels is essential for cranial placode formation. **Jean-Pierre Saint-Jeannet**

206 11:30 am A Spatial Gradient of Cell Size Controls Genome Activation and Contributes to Vertebrate Early Development. **Wenchao Qian**

207 11:45 am Sex Determination in *Xenopus*. **Marko Horb**

208 12:00 pm Functional analysis of Noggin-like genes. **Prashath Karunaraj**

209 12:15 pm Can microRNAs facilitate the progression of developmental commitment? **Amy Sater**

Friday, April 24
10:30 am - 12:30 pm
Woodrow Wilson Ballroom B-D

New Technologies and their Impact (Yeast)

Session Chairs:
Brenda Andrews
Benoit Kornmann

210 10:30 am Winge-Lindegren Address given by Mike Snyder, Stanford Univeristy

211 11:00 am Mapping condition-specific genetic interactions. **Michael Costanzo**

212 11:15 am A high throughput method to assay mutation rate: Determining the pathogenicity of Msh2 variants associated with Lynch syndrome. **Anja Ollodart**

213 11:30 am Transplantation of metabolic pathways across vast phylogenetic distances. **Jef Boeke**

214 11:45 am Onyx: A benchtop platform for massively parallel editing of the yeast genome. **Nandini Krishnamurthy**

215 12:00 pm Title unavailable at time of print. **Benoit Kornmann**

581B 12:14 pm High throughput screening for chemical inhibitors of mammalian adenylyl cyclases expressed in fission yeast. **Charles Hoffman**

575B 12:18 pm *Refactor a chromosome arm in yeast*. **Junbiao Dai**

930C 12:20 pm Links between chromatin status and 3'-end mRNA processing. **Laramie Lemon**

2144B 12:22 pm High-throughput yeast screening reveals a new dimension of intracellular pathogenesis. **Alexander Ensminger**

710B 12:24pm Viruses and double-stranded RNA satellites: a killer combination for the production of novel antifungal toxins by yeasts. **Paul Rowley**

714C 12:26 pm Mistranslation elicits different cellular responses based on the amino acid substitution. **Matthew Berg**

713B 12:28pm Hermes transposon mutagenesis reveals genes needed to prevent yeast prion toxicity. **Herman Edskes**

Friday, April 24
10:30 am - 12:30 pm
Maryland C

New Technologies and Resources (Zebrafish)

Session Chairs:
David Grunwald
Brian Ciruna

216 10:30 am Optimization of a high-throughput platform for the morphological and behavioral characterization of zebrafish larvae. **Megan Dennis**

217 10:45 am NTR 2.0: an improved nitroreductase targeted cell ablation system. **Jeff Mumm**

218 11:00 am A Comparison of CRISPR/Cas9-Based Methods for Creating Amino Acid Substitutions in Zebrafish. **Yvonne Rosario**

219 11:15 am pGTAG and pPRISM: Two expanded tool sets for using short regions of homology for precise DNA integration at CRISPR/Cas9 cut sites. **Jeffrey Essner**

220 11:30 am Chemoptogenetic Induction of Neuronal Mitochondrial Damage *in vivo*. **Binxuan Jiao**

221 11:45 am Defining zebrafish oogonial stem cells and their somatic cell niche at single-cell resolution. **Bruce Draper**

222 12:00 pm scRNAseq developmental trajectories to investigate differentiation. **Jeffrey Farrell**

223 12:15 pm Zebrafish CRISPR screening validates and classifies a set of novel candidate genes for human congenital heart defects. **Lisa Maves**

2146A 12:24 pm Zevatars; the future of personalized cancer medicine. **Shaila Mudambi**

1919B 12:26 pm Elucidating the BMP heterodimer signaling mechanism. **Benjamin Tajer**

1922B 12:28 pm Hair-Cell Presynaptic Activity Contributes to Ototoxin Susceptibility in Zebrafish. **Daria Lukasz**

Friday, April 24
2:00 pm - 4:00 pm
Potomac A/B

Developmental Genetics: Cell Specification and Competition

Session Chairs:
Lindsey Barske
Jing Yang

224 2:00 pm Dynamic self-generation of FGF morphogen gradients by cytonemes during *Drosophila* tracheal patterning. **Lijuan Du**

225 2:15 pm The BMP signaling gradient is interpreted as concentration thresholds during dorsal-ventral patterning of the embryonic axis. **Hannah Greenfeld**

226 2:30 pm Localized and tissue-wide gene expression changes during regeneration of *Drosophila* imaginal discs revealed by single-cell analysis. **Melanie Worley**

227 2:45 pm Quantitative anaysis of trancriptome dynamics during developmental state transitions. **Carole LaBonne**

228 3:00 pm Generating left-right asymmetry through RNA regulation in Kupffer's Vesicle. **Rebecca Burdine**

229 3:15 pm Epithelial integrity monitoring via ligand-receptor segregation ensures malignant cell elimination. **David Bilder**

230 3:30 pm Cell competition as a selection against aneuploid cells. **Nicholas Baker**

231 3:45 pm Genetic basis and evolutionary context for structural color shift in the Buckeye butterfly (*Junonia coenia*). **Rachel Thayer**

Friday, April 24
2:00 pm - 4:00 pm
Woodrow Wilson A

Models of Neurological Diseases

Session Chair:
Kerri Kinghorn

232 2:00 pm Probing the Mechanism of ROS-induced Lipid Droplet formation and Implications for Alzheimer's disease. **Matthew Moulton**

233 2:15 pm Multi-species animal modeling of a human mutation in *KCNT1* that is associated with epilepsy. **Elizabeth Bryda**

234 2:30 pm Mutant *Hoxb8* Microglia Are Causative for Chronic Anxiety and OCD-Spectrum Disorders in Mice. **Mario Capecchi**

235 2:45 pm TRPV4 disrupts mitochondrial transport and causes axonal degeneration via a CaMKII-dependent elevation of intracellular Ca2+. **Thomas Lloyd**

236 3:00 pm Single Cell Transcriptomics Reveals Misregulated Cellular and Molecular Networks in a Mouse Model of Fragile X Syndrome. **Elisa Donnard**

237 3:15 pm Downregulation of innate immunity suppresses seizures in *prickle* mutants. **Krishna Madhav Nukala**

238 3:30 pm Creating and Understanding Next-Generation Mouse Models of Alzheimer's Disease. **Gregory Carter**

239 3:45 pm Genome-wide discovery of human-gene toxicity modifiers of α-synuclein. **Ishita Haider**

Friday, April 24
2:00 pm - 4:00 pm
Cherry Blossom Ballroom

Through a Population Genetics Lens

Session Chair:
C. Brandon Ogbunu

240 2:00 pm Attacks on genetic privacy via uploads to genealogical databases. **Michael Edge**

241 2:15 pm A *Drosophila* telomere protein evolves adaptively to contain telomeric retrotransposons. **Mia Levine**

242 2:30 pm Genome-wide *in vivo* fitness costs of mutations in Hepatitis C virus. **Kaho Tisthammer**

243 2:45 pm Identifying sites under positive selection on viral proteins. **Jonathan Mah**

244 3:00 pm Mutualistic interactions shape adaptation in a model yeast-algae community. **Sandeep Venkataram**

245 3:15 pm Most cancers carry a substantial deleterious load due to Hill-Robertson interference. **Susanne Tilk**

246 3:30 pm The effect of negative selection on the genetic diversity of recombining populations. **Ivana Cvijovic**

1234A 3:45 pm Assortative mating and rapid adaptation shape genetic variation in admixed Cape Verdeans. **Katharine Korunes**

994A 3:47 pm *De novo* evolved genes are essential for *Drosophila* male fertility and act at multiple stages of spermatogenesis. **Geoffrey Findlay**

1384A 3:49 pm The theory and practice of measuring broad-range and chromosome-wide recombination rate from marker selected pools. **Kevin Wei**

1150A 3:51 pm Increased oxidative damage to DNA in the lab environment cannot explain why the *C. elegans* mutation spectrum is different in the lab and in nature. **Moein Rajaei**

1001B 3:53 pm Positive and negative selection explain phage domestication. **Lindi Wahl**

1286B 3:55 pm Investigating the role of PRDM9 in invertebrate recombination using the coral *Acropora millepora*. **Carla Hoge**

Friday, April 24
2:00 pm - 4:00 pm
Potomac C/1-3

New Technology and Resources

Session Chair:
Aashiq Kachroo

247 2:00 pm Large-scale phenotypic profiling of yeast subcellular compartments using high-content screening at single-cell resolution. **Mojca Mattiazzi Usaj**

248 2:15 pm The design and assembly of synthetic yeast chromosome VIII. **Stephanie Lauer**

249 2:30 pm Quantifying material tissue properties in cellularizing *Drosophila* embryo using soft bendable cantilevers. **Konstantin Doubrovinski**

250 2:45 pm Mapping cell types and gene regulatory networks in the developing *Drosophila* brain using single-cell transcriptomics and epigenomics. **Jasper Janssens**

251 3:00 pm Light-dependent spatiotemporal control of gene expression a la carte: from discrete patterns to emoji-like shapes. **Lorena de Mena**

252 3:15 pm Defining the Geometry of Life Across Model Organisms as a Unifying Framework for Computational Phenomics. **Keith Cheng**

253 3:30 pm Combined transient ablation and single cell RNA sequencing reveals the development of medullary thymic epithelial cells. **Kristen Wells**

254 3:45 pm A human cell atlas of gene expression during development. **Junyue Cao**

Friday, April 24
2:00 pm - 4:00 pm
Maryland A

Education Session

Session Chairs:
Justin DiAngelo
Te-Wen Lo
Jenny Knight

255 2:00 pm Bear Hair Snares & DNA: Impact of Collaborative Instruction on Molecular Genetics and Mammalogy Students. **Julie Hall**

256 2:15 pm CURE to CURE: Designing and Synthesizing Anti-biofilm Drugs as Sophomores (Intro Bio and O-Chem CURE) as a Foundation for Screening and Analyzing Mutants in Biofilm Production Pathways as Juniors (Upper level Genetics CURE). **Linda Hensel**

257 2:30 pm Genome Solver: Building faculty skills in bioinformatics. **Anne Rosenwald**

258 2:45 pm Promoting learn*ing* and learn*er* -centered teaching of genetics and bioinformatics with the Assessment Evaluation Rubric. **Rochelle Tractenberg**

259 3:00 pm The Genomics Education Alliance: scalable, sustainable Infrastructure for undergraduate course-based research experiences. **Jason Williams**

260 3:15 pm Crowd-sourcing CRISPR: A course-based research project to investigate the impact of chromatin environment on double-strand break repair while enhancing student learning. **Rebecca Burgess**

261 3:30 pm The Pipeline CURE: an iterative approach to introduce all students to research throughout a biology curriculum. **Teresa Lee**

262 3:45 pm Performance-Enhanced Biology: an interdisciplinary and inter-institutional experiment in science literacy and communication. **Luke Ziegler**

Friday, April 24
8:00 pm - 10:15 pm
Potomac Ballroom

Keynote Session 2

Session Chair:
Terry Magnuson

Stem Cells In Silence, Action and Cancer. **Elaine Fuchs**

How can biology and breeding contribute to improving food systems and climate change? **Ed Buckler**

A liquid-like organelle at the root of motile ciliopathy. **John Wallingford**

Alliance for Genome Resources. **Paul Sternberg**

Genetics Society of America Award Presentations

Back (and Forward!) to Basics. **Keith Yamamoto**

Saturday, April 25

8:00 am - 10:00 am
Maryland A

Gene Regulation: RNA Features and Functions

Session Chair:
Julie Claycomb

268 8:00 am Unraveling the influence of sequence features and position on uORF activity using massively parallel reporter systems and machine learning. **Joel McManus**

269 8:15 am Codon usage bias in a complex multicellular organism: one size does not fit all. **Scott Allen**

270 8:30 am The splicing factor SFPQ represses the formation of cryptic last exons. **Pat Gordon**

271 8:45 am Splicing takes place as RNA polymerase II transcribes past recursive and canonical splice sites in the developing *Drosophila* embryo. **Rui Gonçalo Martinho**

272 9:00 am mRNAs targeted by silencing small RNAs accumulate in P granules. **John Paul Ouyang**

273 9:15 am Functional evolution of noncoding RNA for mammalian dosage compensation. **Sha Sun**

274 9:30 am An m6A/YTHDF1 pathway is required for learning and memory in *Drosophila*. **Lijuan Kan**

275 9:45 am RNA abasic sites in yeast and human cells. **Vivian Cheung**

Saturday, April 25
8:00 am - 10:00 am
Maryland C

Genome Integrity

Session Chairs:
Brian Calvi
Beth Dumont

276 8:00 am Evolutionarily conserved pathways prevent mislocalization of CENP-A and chromosomal instability (CIN) in yeast and human cells. **Munira Basrai**

277 8:15 am Rif1 functions in a tissue-specific manner to control replication timing through its PP1-binding motif. **Jared Nordman**

278 8:30 am Evidence of pervasive DNA replication mediated class of CNVs. **Pieter Spealman**

279 8:45 am Polymerase theta protects against detrimental mitotic recombination. **Juan Carvajal-Garcia**

280 9:00 am Chromatin modifiers alter repair/rejection outcomes during homologous recombination in *S. cerevisiae*. **Beata Mackenroth**

281 9:15 am Regulation of sister chromatid repair maintains genomic integrity during meiosis. **Erik Toraason**

282 9:30 am The meiosis-specific cohesin subunit Rad21l1 is required for oogenesis but is dispensible for spermatogenisis in zebrafish. **Sean Burgess**

283 9:45 am Delineation of the SUMO-Modified Proteome Reveals Regulatory Functions Throughout Meiosis. **Neil Hunter**

Saturday, April 25
8:00 am - 10:00 am
Potomac A/B

Genetics of Neuronal Development and Behavior

Session Chairs:
Julie Dallmann
Max Heiman

284 8:00 am The primary cilia gene *Ttc21b* modulates forebrain and orofacial development as a crucial ciliopathy gene. **Rolf Stottmann**

285 8:15 am Unique homeobox codes delineate all neuron classes of the nematode *Caenorhabditis elegans*. **Molly Reilly**

286 8:30 am Axonal initial segment-like regions are localized distal to the intersection of dendrites and axons in active *Drosophila* neurons. **Thomas Ravenscroft**

287 8:45 am Autophagy-dependent filopodial kinetics restrict synaptic partner choice during *Drosophila* brain wiring. **Ferdi Ridvan Kiral**

288 9:00 am Neuropeptide VF Neurons Promote Sleep via the Serotonergic Raphe. **Daniel Lee**

289 9:15 am Maintenance of homeostasis by regulating taste circuits and feeding behaviors. **Liqun Yuan**

290 9:30 am Feedback between sensorimotor and neuromodulatory circuits enables flexible selection of behavioral states in *C. elegans*. **Steven Flavell**

291 9:45 am Formation and roles of the specialized architecture of axonal tubular ER, and its relevance to axon degeneration. **Cahir O'Kane**

Saturday, April 25
8:00 am - 10:00 am
Cherry Blossom Ballroom

Departures from Additivity: Dominance, Epistasis and GxE

Session Chair:
Jeffrey Ross-Ibarra

292 8:00 am Temperature-dependent phenotypic effects of house fly proto-Y chromosomes explain the maintenance of polygenic sex determination in natural populations. **Kiran Adhikari**

293 8:15 am Gene-by-diet interactions modulate the landscape of transcriptional response of individual fruit flies. **Luisa Pallares**

294 8:30 am Sign inversion in selection on modifier mutations. **Yevgeniy Raynes**

295 8:45 am The persistence of haploinsufficiency over evolutionary time, and its consequences. **Summer Morrill**

296 9:00 am Goldilocks and the Three Genotypes: Characterizing the Prevalence of Overdominance for Adaptive Mutations that Arise in Diploids. **Vivian Chen**

297 9:15 am Genetic mapping in the rice 'heat MAGIC' population using imputed genotype data from low coverage sequencing. **Funmi Ladejobi**

298 9:30 am Evolutionary modification of dominance reversal under seasonal antagonism. **Evgeny Brud**

1138A 9:45 am Genetic background influences evolutionary heterogeneity and genome stability in adaptation to antifungal drugs. Aleeza Gerstein

1146C 9:47 am What does recessive deleterious variation look like? **Matthew Rockman**

976A 9:49 am Evolutionary causes and consequences of the epistatic interactions among deleterious transposable element insertions. **Grace Lee**

1373B 9:51 am Coheritability and Coenvironmentability as Concepts for Partitioning the Phenotypic Correlation. **Jorge Vasquez-Kool**

1208B 9:53 am Mitochondrial evolution among diverse yeast species and engineering synthetic mitochondrial genomes. **John Wolters**

896B 9:55 am Stage-specific gene expression throughout threespine stickleback spermatogenesis revealed through single-cell RNAseq. **Daniel Shaw**

Saturday, April 25
8:00 am - 10:00 am
Potomac C/1-3

Direct Collaborations Between Model Organism Researchers and Clinicians

Session Chairs:
Shinya Yamamoto
Andy Golden
Koichi Kawakami
Philippe Campeau

299 8:00 am The essential role of model organisms for functional studies of genes and variants linked to human diseases. **Ada Hamosh**

300 8:15 am Solving difficult to diagnose diseases using flies and zebrafish: the Model Organisms Screening Centers of the Undiagnosed Diseases Network. **Hugo Bellen**

301 8:30 am The Canadian Rare Diseases Models and Mechanisms (RDMM) Network: Connecting Understudied Genes for Rare Diseases to Functional Characterization Research in Model Organisms. **Phillippe Campeau**

302 8:45 am J-RDMM: the challenge in Japan to apply zebrafish and other model organisms to the study of rare and undiagnosed diseases. **Koichi Kawakami**

303 9:00 am Leveraging the International Mouse Phenotyping Consortium in collaborative research. **Lauryl Nutter**

304 9:15 am Modeling rare monogenic human diseases in *C. elegans*. **Andy Golden**

305 9:30 am A model organism-based drug discovery pipeline for amyotrophic lateral sclerosis. **Alex Parker**

306 9:45 am Strategies and resources to facilitate direct collaborations between clinicians and model organism researchers on a global scale. **Shinya Yamamoto**

Saturday, April 25
10:30 am - 12:30 pm
Maryland C

Genomics and Systems Biology

Session Chair:
Audrey Gasch

307 10:30 am A distinct class of condensin II sites are required to establish long-range interactions between distal heterochromatic sites following mitotic exit. **Randi Isenhart**

308 10:45 am Dynamics and functional characterization of the pan-metazoan ultra-conserved smORFeome in *Drosophila*. **Nathan Keith**

309 11:00 am Functional Analysis of the Mysterious Germline-Restricted Chromosome in Zebra Finch (*Taeniopygia guttata*). **Kathryn Asalone**

310 11:15 am DeepArk: sequence-based models of cis-regulatory logic for model organisms. **Evan Cofer**

311 11:30 am Biological Robustness: genetic compensation and transcriptional adaptation. **Didier Stainier**

312 11:45 am The dynamics of global acetylation remodeling during the yeast heat shock response. **Jeff Lewis**

313 12:00 pm Disome profiling reveals genome-wide targets of ribosome quality control. **Nicholas Guydosh**

314 12:15 pm A large accessory protein interactome is rewired across environments. **Sasha Levy**

Saturday, April 25
10:30 am - 12:30 pm
Potomac A/B

Developmental Genetics: Organ Systems

Session Chairs:
Ruth Arkell
John Rawls

315 10:30 am Single cell sequencing the lateral plate mesoderm origins of mesothelial membranes. **Christian Mosimann**

316 10:45 am Regulation of blood cell transdifferentiation by oxygen sensing neurons through atypical guanylyl cyclases. **Katja Brückner**

317 11:00 am Molecular regulation of vascular smooth muscle cell recruitment to arteries during development. **Amber Stratman**

318 11:15 am *The sexy heart*: sex-specific differences during mouse cardiac development. **Nora Engel**

319 11:30 am Endocardial cell dynamics, modulated by cardiac function and Acvrl1a signaling, shape the cardiac outflow tract. **Deborah Yelon**

320 11:45 am Cholinergic nerve dependent regeneration in the gut. **Afroditi Petsakou**

321 12:00 pm A role for PAR polarity proteins in microtubule reorganization as intestinal epithelial cells divide. **Maria Sallee**

322 12:15 pm An abundant quiescent stem cell population protects principal cells from kidney stones in adult *Drosophila* Malpighian tubules. **Chenhui Wang**

Saturday, April 25
10:30 am - 12:30 pm
Potomac C/1-3

Mechanistic Intracellular Dynamics

Session Chairs:
Amanda Amodeo
Sally Horne-Badovinac

323 10:30 am Patched regulates lipid homeostasis by controlling cellular cholesterol levels. **Anne Spang**

324 10:45 am P*la2g12b* affects serum cholesterol levels via the lipoprotein biogenesis pathway. **James Thierer**

325 11:00 am ERM-1 phosphorylation and NRFL-1 redundantly control lumen formation in the *C. elegans* intestine in concert with the Ste20-like kinase GCK-4. **Mike Boxem**

326 11:15 am Connecting the lamin dots: Lmnl3 orchestrates chromosome segregation and replication timing during zebrafish cleavage stages. **Dana Klatt Shaw**

327 11:30 am Ire1 Phosphorylates Pumilio to protect XBP1 mRNA from RIDD. **Fatima Cairrao**

328 11:45 am Phenomic screen implicates the yeast lysine acetyltransferase NuA4 in regulation of glycogen synthesis and mitochondrial morphology through the PKA inhibitor Bcy1. **Elizabeth Walden**

329 12:00 pm Translational induction of ATF4 mRNA during Integrated Stress Response requires noncanonical initiation factors eIF2D and DENR. **Hyung Don Ryoo**

330 12:15 pm α-Arrestins Regulate Autophagy. **Allyson O'Donnell**

Saturday, April 25
10:30 am - 12:30 pm
Maryland A

Discovering Careers in Industry
Sponsored by Calico and DuPont

This session will provide attendees a deeper understanding of the organizational structure of companies, various roles within organizations, how to prepare for a transition into industry, and more. Kailene Simon, Associate Director at Atalanta Therapeutics, will lead off with a 20 minute talk about the current environment for scientists in industry, and will then interview the scientists listed below about their experiences, focusing on the opportunities and challenges of working in the private sector. This will be followed by an opportunity for attendees to meet with recruiters from companies.

- **Julia Alterman,** Principal Scientist, Atalanta Therapeutics
- **Janis Weeks**, Co-founder and Chief Global Health Officer, NemaMetrix, Inc
- **Christian Mueller**, Head of Gene Therapy, Sanofi Genzyme
- **Lucy Xie**, Postdoctoral Fellow, Stanford University
- **Alan Xian Ji**, Scientist, Eidos Therapeutics
- **Abraham Scaria**, Chief Scientific Officer, IVERIC Bio

Saturday, April 25
10:30 am - 12:30 pm
Cherry Blossom Ballroom

Complex Trait Adaptation

Session Chair:
Emily B. Josephs

331 10:30 am Characterizing strong adaptation in an admixed population over 20 generations. **Amy Goldberg**

332 10:45 am Population genomics identifies a large region with multiple adaptive targets across populations of an agricultural pest subjected to insecticide selection. **Bernarda Calla**

333 11:00 am Decoding wheat adaptation by genus-level population sequencing. **Fei Lu**

334 11:15 am The genomic basis of adaptation in a ninety year long barley experiment. **Daniel Koenig**

335 11:30 am The strength and pattern of natural selection on rice gene expression. **Simon Groen**

336 11:45 am Fitness and environmental patterns in maize landraces identify beneficial alleles at single gene resolution. **Daniel Gates**

337 12:00 pm A full-likelihood method to disentangle selection on genetically-correlated traits using whole-genome genealogies. **Aaron Stern**

1024A 12:15 pm The genomic signature of gene flow between crop and wild amaranth species and its contribution to incomplete domestication. **Markus Stetter**

997A 12:17 pm Field experiment demonstrates rapid phenotypic and polygenic genomic adaptation in response to seasonal environmental change. **Seth Rudman**

1340B 12:19 pm Local adaptation in *Populus trichocarpa*. **Hari Chhetri**

973A 12:21 pm The role of phospholipid metabolism in maize adaptation to highlands. **Rubén Rellán-Álvarez**

1028B 12:23 pm Inversion polymorphisms suppress recombination across megabase-scale genomic blocks between locally adapted populations of the Atlantic silverside. **Maria Akopyan**

1294A 12:25 pm Inferring the properties of mutational effects on fitness using high-throughput phenotyping. **Yevgeniy Plavskin**

Saturday, April 25
2:00 pm - 4:00 pm
Woodrow Wilson A

Germ Line (*C. elegans*)

Session Chair:
Diana Chu

338 2:00 pm Lessons learned from a genetic law-breaker. **Diane Shakes**

339 2:30 pm mRNA localization is linked to translation regulation in the *Caenorhabditis elegans* germ lineage. **Dylan Parker**

340 2:45 pm DNA damage repair is altered in aging *C. elegans* oocytes. **Victoria Adler**

341 3:00 pm SPE-36 is an EGF-motif containing secreted sperm protein required for fertilization in *C. elegans*. **Amber Krauchunas**

342 3:15 pm DAF-18/PTEN inhibits germline zygotic gene activation during primordial germ cell quiescence. **E Hubbard**

343 3:30 pm Effects of Polyploidy in *C. elegans*. **Mara Schvarzstein**

1440C 3:45 pm Determining the role of LOTR-1, a LOTUS and Tudor domain containing protein in the germline of *C. elegans*. **Elisabeth Marnik**

1924A 3:47 pm Age-related loss of flavin adenine dinucleotide (FAD) impairs sperm function and male reproductive advantage in *C. elegans*. **Chia-An Yen**

1452C 3:49 pm The Exocyst Complex Promotes Stem Cell Proliferation by Regulating Recycling of Notch Receptor in *Caenorhabditis elegans* Germline. **Pushpa Kumari**

1450A 3:51 pm SPE-51, a secreted protein with Ig-like fold, is required for sperm-egg fusion in *C. elegans*. **Xue Mei**

1449C 3:53 pm NHR-23/NR1F1 is necessary for organelle biogenesis and progression through meiosis I during *C. elegans* spermatogenesis. **Jordan Ward**

1458C 3:55 pm Distinct steps in *C. elegans* oogenesis are regulated by specific neurons and insulin-like peptides in response to food quality. **Joy Alcedo**

Saturday, April 25
2:00 pm - 4:00 pm
Potomac A/B

Developmental Genetics (*Drosophila*)

Session Chairs:
Mary Baylies
Nic Tapon
Melanie Worley

344 2:00 pm Intercellular feedback in the growing *Drosophila* germline cluster. **Caroline Doherty**

345 2:15 pm A new conserved modulator of immune cell tissue invasion induces a metabolic program through concerted shifts in transcription and translation. **Daria Siekhaus**

346 2:30 pm Positioning a stem cell niche during organogenesis. **Lauren Anllo**

347 2:45 pm Ecdysone dependent maturation of the epithelial barrier limits Dilp8 signaling in *Drosophila* wing imaginal discs. **Danielle DaCrema**

348 3:00 pm The Integrity of the mitotic nuclear lamina is required for stem cell maintenance. **Tingting Duan**

349 3:15 pm Cells with loss-of-heterozygosity after exposure to ionizing radiation in *Drosophila* are culled by p53-dependent and p53-independent mechanisms. **TinTin Su**

350 3:30 pm Rescue of a missing heart: The role of ribosomal proteins in congenital heart disease. **Tanja Nielsen**

351 3:45 pm Wound-induced polyploidization enables the *Drosophila* abdominal epithelium to adapt and become muscle-like to restore tissue mechanics. **Kayla Gjelsvik**

Saturday, April 25
2:00 pm - 4:00 pm
Potomac C/1-3

Neurogenetics/New Technology (*Drosophila*)

Session Chairs:
Bassem Hassan
Robin Hiesinger
Kate O'Connor-Giles
Giorgio Gilestro
Leif Benner

352 2:00 pm Non-autonomous regulation of *Drosophila* neuroblast proliferation via glia lipid mediated hedgehog signalling. **Qian Dong**

353 2:15 pm The ionotropic receptor *IR56D* is selectively required for perception of medium-chain fatty acids. **Elizabeth Brown**

354 2:30 pm Walking and Singing: Closed-loop modulation of *Drosophila* song. **Osama Ahmed**

355 2:45 pm Sorry not sorry: The neural basis of female aggression. **Amanda Moehring**

356 3:00 pm A large library of UAS-human cDNA constructs and transgenic *Drosophila* stocks to facilitate translational research. **Shinya Yamamoto**

357 3:15 pm Proteomics of protein trafficking by *in vivo* tissue-specific labeling. **Ilia Droujinine**

358 3:30 pm Efficient allelic-drive in *Drosophila*. **Annabel Guichard**

359 3:45 pm Microbiome High-throughput Screening System in *Drosophila*: an Opportunity to Understand Colonization. **Maria Jaime**

Saturday, April 25
2:00 pm - 4:00 pm
Potomac D/4-6

Developmental Genetics (Mammal)

Session Chairs:
Teresa Gunn
Lauryl Nutter

360 2:00 pm Proteomics reveals the role of translational regulation in ES cells. **Selcan Aydin**

361 2:15 pm Coordinate regulation of chromosome length and crossover rate by SUMO. **Neil Hunter**

362 2:30 pm Exploring the Genetic Basis for Atrioventricular Septal Defects in Down Syndrome. **Yicong Li**

2:45 pm IMGS Trainee Symposium Selected Presentation

363 3:00 pm Defining the chromatin state and gene regulatory network underlying the regenerative potential of alveolar epithelial progenitor cells. **William Zacharias**

3:15 pm IMGS Trainee Symposium Selected Presentation

364 3:30 pm Altered neural crest development in *Pax3* Spina bifida mutants underlies deficits in bladder innervation and aberrant bladder function. **Michelle Southard-Smith**

365 3:45 pm Elevated canonical WNT signalling disrupts heart development and may underlie cases of human Heterotaxy. **Kristen Barratt**

Saturday, April 25
2:00 pm - 4:00 pm
Cherry Blossom Ballroom

Divergence, Hybridization and Reproducible Isolation (PEQG)

Session Chair:
Molly Schumer

366 2:00 pm Assembly of a young vertebrate Y chromosome reveals convergent signatures of sex chromosome evolution. **Catherine Peichel**

367 2:15 pm A supernumerary chromosome produces a 0W/00 sex determination system in a cichlid fish. **Erin Peterson**

368 2:30 pm Odorant receptor tuning contributes to the evolution of sexual signaling in perfume-collecting orchid bees. **Philipp Brand**

369 2:45 pm The selective forces and genetic basis of mating interactions that contribute to the rapid evolution of reproductive isolation. **Dean Castillo**

370 3:00 pm X-linked incompatibilities underlie widespread disruption of autosomal regulatory networks in overgrown placentas of hybrid dwarf hamsters. **Emily Moore**

371 3:15 pm Repeated evolution of circadian clock dysregulation in cavefish populations. **Katya Mack**

372 3:30 pm The genetics of reproductive isolation through host switching in experimentally evolved pigeon lice (Columbicola columbae). **James Baldwin-Brown**

1106B 3:45 pm Mechanisms of hybrid male sterility in reciprocal crosses between malaria mosquito species. **Igor Sharakhov**

1098C 3:47 pm Using genome-wide patterns of ancestry to infer the demographic history of hybrid zones. **Megan Frayer**

1092C 3:49 pm Locomotion leads to speciation, in the form of a supergene locus. **Wei Zhang**

1297A 3:51 pm Investigating the role of odorant binding proteins in the *Drosophila* post-mating response. **Nora Brown**

1007B 3:53 pm Inferring adaptive introgression using Hidden Markov Models. **Jesper Svedberg**

1055B 3:55 pm A comparative population genomics approach for high-resolution maps of natural selection in drosophilids. **Bernard Kim**

Saturday, April 25
2:00 pm - 4:00 pm
Woodrow Wilson Ballroom B-D

System Biology of Yeast (Yeast)

Session Chairs:
Maya Schuldiner
John Pringle

373 2:00 pm Presentation of Yeast Genetics Meeting Lifetime Achievement Award to Nancy Kleckner, Harvard University

374 2:15 pm Cleavage-furrow formation without an actomyosin ring in yeast and *Chlamydomonas*. **Masayuki Onishi**

375 2:30 pm Towards a systematic map of the functional role of protein phosphorylation. **Bede Busby**

376 2:45 pm Species-wide survey of background-dependent phenotype across yeast natural populations. **Jing Hou**

377 3:00 pm Gene regulatory network reconstruction using single-cell RNA sequencing of barcoded genotypes in diverse environments. **David Gresham**

378 3:15 pm Connecting novel rare disease gene discoveries to functional characterization research in yeast and other model organisms. **Phil Hieter**

379 3:30 pm Uncovering the function of uncharacterized yeast proteins using a multitude of new Swap-Tag (SWAT) libraries. **Maya Schuldiner**

672C 3:44 pm Comparative pangenome analysis across yeast species reveals a variability shaped by introgression events. **Joseph Schacherer**

1907B 3:46 pm A repurposed role for the E3 ubiquitin ligase Hrd1 in the retrotranslocation of misfolded membrane proteins. **Marco Proietto**

955A 3:48 pm A CAF-1-mediated replication-coupled chromatin assembly pathway prevents inappropriate silent chromatin formation via promoting histone acetylation. **Ann Kirchmaier**

1881C 3:50 pm A MAPK inhibitor that is targeted for destruction by the anaphase promoting complex links spore differentiation to the completion of meiosis. **Abhimannyu Rimal**

2131A 3:52 pm Divergent trajectories of single-cell aging. **Nan Hao**

1913B 3:54 pm Regulation of the Cardiac Potassium Channel Kir2.1 by α-Arrestins. **Natalie Hager**

1887C 3:56 pm Uncovering the Role of Eaf1 in the Delicate Balance of Lipid Droplet Synthesis and Membrane Composition in *Saccharomyces cerevisiae*. **Sarah Laframboise**

1884C 3:58 pm Regulation of an Intrinsic Polarity Establishment Pathway by a Differentiation-Type MAPK Pathway. **Aditi Prabhakar**

Saturday, April 25
2:00 pm - 4:00 pm
Maryland C

Insights into Cellular Dynamics and Functions (Zebrafish)

Session Chairs:
Qing Deng

380 2:00 pm The recycling endosome protein Rab25 coordinates actomyosin network maintenance, mitosis and cytokinesis to regulate epithelial tissue spreading in the zebrafish gastrula. **Morley Willoughby**

381 2:15 pm Dynamic actomyosin pulses induce visco-elastic heterogeneity to drive epithelial cell extrusion. **Youmna Atieh**

382 2:30 pm Only Unstable Integrins are Activated by the Extracellular Matrix *in vivo*. **Guangyu Sun**

383 2:45 pm Genetic analysis of ileal identity in the zebrafish intestine. **John Rawls**

384 3:00 pm Cooperative activities of activation and repressive elements in cardiac regeneration enhancers confer regenerationspecific gene transcription. **Junsu Kang**

385 3:15 pm Regulation of protrusive behavior during collective cell migration. **Hannah Olson**

386 3:30 pm Skin cells undergo cellular fission to support expanding body surfaces in zebrafish. **Keat Ying Chan**

387 3:45 pm Studying meningeal development and function using the zebrafish. **Marina Venero Galanternik**

Saturday, April 25
7:45 pm - 9:30 pm
Potomac Ballroom

Keynote Session 3

Session Chairs:
Qing Deng

Selective interference and the evolution of sex.
Sarah Otto

Bridging biophysics and neurology: the role of aberrant phase transitions in neurological disease.
J. Paul Taylor

Genetics Society of America Award Presentations

Interview. **Pat Brown**

Sunday, April 26

8:00 am - 10:00 am
Woodrow Wilson A

Neuronal Development *(C. elegans)*

Session Chair:
Richard Pool

391 8:00 am Homeobox gene encode neuronal cell type diversity. **Oliver Hobert**

392 8:30 am Embryo to mother signal to clean up molecular garbage-transgenerational proteostasis adjustment via exopher production. **Sangeena Salam**

393 8:45 am Retrograde extension as a general mechanism of sensory dendrite development. **Maxwell Heiman**

394 9:00 am FKH-7/FOXP regulates sensory neuron function during developmental decision-making. **Cynthia Chai**

395 9:15 am Distinct mechanisms regulate presynaptic release of functionally similar insulin/IGF-like proteins in *C. elegans* sensory neurons. **Tali Gidalevitz**

396 9:30 am Sensory cilia as the Achilles heel of nematodes when attacked by carnivorous mushrooms. **Yen-Ping Hsueh**

397 9:45 am Identifying biogenesis mechanisms for discrete subpopulations of ciliary-derived extracellular vesicles. **Rachael Gill**

Sunday, April 26
8:00 am - 10:00 am
Potomac A/B

Gene Regulation/Genome Integrity (*Drosophila*)

Session Chairs:
Melissa Harrison
Daniel McKay
Jeff Sekelsky
Astrid Haase
Evan Dewey

398 8:00 am Ecdysone Signaling Shapes Tissue Regeneration in Wing Discs through Regulation of Wingless Expression. **Faith Karanja**

399 8:15 am The temporal transcription factor E93 controls enhancer competency during *Drosophila* wing development. **Matthew Niederhuber**

400 8:30 am The transcription factor M1BP targets CP190 to chromatin to regulate transcription and chromatin insulator activity. **Indira Bag**

401 8:45 am Coordinate regulation of salivary gland form and function by *ribbon* during tubulogenesis. **Rajprasad Loganathan**

402 9:00 am Ribosomal DNA-specific retrotransposons maintain unstable ribosomal DNA repeats in the *Drosophila* male germline. **Jonathan Nelson**

403 9:15 am Mechanisms of CO suppression by heterozygous inversion breakpoints. **Nicole Crown**

404 9:30 am Targeted *de novo* centromere formation in *Drosophila* reveals plasticity and maintenance potential of CENP-A chromatin. **Barbara Mellone**

405 9:45 am Gazing into the CRISPR crystal ball – experimental and computational analysis of Cas9-induced alternative end-joining in *Drosophila*. **Mitch McVey**

Sunday, April 26
8:00 am - 10:00 am
Potomac C/1-3

Intracellular Dynamics (*Drosophila*)

Session Chairs:
Matt Sieber
Savraj Grewal
Heidi Bretscher

406 8:00 am Adipose mitochondrial metabolism couples nutrients to systemic insulin signaling and growth. **Shrivani Pirahas**

407 8:15 am Coordination of Insulin signalling and metabolism during selective organ sparing. **Sebastian Sorge**

408 8:30 am Clu bliss particles respond to nutritional regulation in *Drosophila* germ cells. **Kelsey Sheard**

409 8:45 am A rapidly evolving actin-related protein monitors sperm quality in *Drosophila*. **Courtney Schroeder**

410 9:00 am CDK-regulated phase separation seeded by histone genes ensures precise growth and function of Histone Locus Bodies. **Robert Duronio**

411 9:15 am Optogenetic dissection of signaling crosstalk in the early embryo. **Sarah McFann**

412 9:30 am Regulation of Mitochondrial Network Organization in Muscles. **Prasanna Katti**

413 9:45 am A CSN-SDR-PLIN2 axis regulates lipid droplet size via affecting Brummer ATGL lipase. **Xun Huang**

Sunday, April 26
8:00 am - 10:00 am
Potomac D/4-6

New Technology and Resources (Mammal)

Session Chairs:
Martin Hrabe de Angelis
Marty Ferris

414 8:00 am Efficient and effective curriculum development and training for biological sciences. **Sue McClatchy**

415 8:15 am The mouse Gene Expression Database (GXD): fostering insights into the molecular mechanisms of development and disease. **Constance Smith**

416 8:30 am Completing the GENCODE gene catalogue for the mouse reference genome. **Jane Loveland**

417 8:45 am Disease Portals at RGD: Access to Consolidated Disease-Related Data and Tools Across Species. **Jennifer Smith**

418 9:00 am Physiological metal nanoparticle-based genome editor delivery system for correction of human *CFTR* mutation in a mouse model. **Daniel Davis**

419 9:15 am Whole genome CRISPR screen identifies genes involved in early human development. **Julie Mathieu**

420 9:30 am IMGS Business Meeting

Sunday, April 26
8:00 am - 10:00 am
Cherry Blossom Ballroom

Future Visions of Population, Evolutionary, and Quantitative Genetics (PEQG)

Session Chair:
Dmitri Petrov

421 8:00 am Announcement of the James F Crow Early Career Researcher Award and Poster Awards. **Bret Payseur**

422 8:15 am Selection against archaic DNA in human regulatory regions. **Kelley Harris**

423 8:30 am Natural hybridization reveals incompatible alleles causing melanoma in swordtail fish. **Molly Schumer**

424 8:45 am Chromatin and epigenomic variation reveals the gene regulatory landscape of adaptive divergence in sticklebacks. **Felicity Jones**

425 9:00 am The role of local adaptation in shaping GxE. **Emily Josephs**

426 9:15 am Evolution of the essential gap gene *giant* causes hybrid inviability in *Drosophila*. **Daniel Matute**

427 9:30 am The epistatic norm of reaction. **Brandon Ogbunu**

Sunday, April 26
8:00 am - 10:00 am
Woodrow Wilson Ballroom B-D

Dynamics and Regulation of Cellular Organization (Yeast)

Session Chairs:
Kerry Bloom
Jodi Nunnari

428 8:00 am Spatial organization of mitochondrial inner membrane subdomains. **Jodi Nunnari**

429 8:15 am MitoCPR– a stress response that maintains mitochondrial homeostasis. **Hilla Weidberg**

430 8:30 am A non-canonical Hippo pathway regulates spindle disassembly and cytokinesis during meiosis II in *Saccaromyces cerevisiae*. **Linda Huang**

431 8:45 am Measuring load-bearing interactions between the Dam1 complex and its multiple binding sites in the Ndc80 complex. **Rachel Flores**

432 9:00 am Spatial segregation of repair pathways within the pericentromere. **Kerry Bloom**

433 9:15 am The kinase Isr1 negatively regulates hexosamine biosynthesis in *S. cerevisiae*. **Emma Alme**

434 9:30 am Ubiquitin hydrolase regulation of membrane scission by ESCRT-III. **Greg Odorizzi**

435 9:45 am Comprehensive protein architecture of the yeast epigenome at high resolution. **Frank Pugh**

Sunday, April 26
8:00 am - 10:00 am
Annapolis

Disease Models (Zebrafish)

Session Chairs:
Charles Kaufman
Zhaoxia Sun

436 8:00 am Enteroendocrine cells sense gut bacteria and activate a gut-brain pathway. **Lihua Ye**

437 8:15 am NMDA receptor dependent nervous system functions. **Howard Sirotkin**

438 8:30 am System-wide approach for genetic and imaging analysis of brain-periphery communications. **Celia Shiau**

439 8:45 am A Novel Model of Retinal Ganglion Cell Death and Regeneration in Zebrafish. **Kevin Emmerich**

440 9:00 am Building the Vertebrate Codex using the Gene Breaking Protein Trap Library. **Noriko Ichino**

441 9:15 am The Reissner Fiber is Highly Dynamic in vivo and Controls Morphogenesis of the Spine. **Ryan Gray**

442 9:30 am Analysis of craniosynostosis risk factors in zebrafish. **Xuan He**

443 9:45 am Novel patient mutations in *MAP4K4* underlie RASopathy-like syndromes. **Victoria Patterson**

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Potomac Ballroom

Closing Keynote Session

Session Chair:
Hugo Bellen

The generation of neural diversity. **Claude Desplan**

Epigenetic switching in seasonal timing. **Caroline Dean**

Pattern recognition and pattern formation between homologous chromosomes during meiosis. **Abby Dernburg**

Harnessing Nature's Diversity for Gene Editing and Beyond. **Feng Zhang**

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452B A Research-based laboratory course in Molecular Biology, Genetics, and Evolution. **Eric Spana**

453C Fly-CURE: A consortium of undergraduate genetics laboratory courses mapping and characterizing Drosophila EMS mutants. **Jacob Kagey**

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1745B The role of the endoplasmic reticulum in germ granule segregation in the early *C. elegans* embryo. **Erik Griffin**

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1751B Probing for alternative evolutionarily conserved forms of autophagy in *C. elegans*. **VEDAT ONUR YILMAZ**

1752C Control of clathrin-mediated endocytosis by NIMA family kinases. **Braveen Joseph**

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1755C Opposing roles for two putative lipid transporters in apical ECM-dependent tube shaping. **Meera Sundaram**

1756A Using single molecule resolution to understand how phase-separated condensates organize the siRNA pathway. **Celja Uebel**

1757B Histone H3 is a competitive Chk1 inhibitor that controls early cell cycle progression. **Amanda Amodeo**

1758C Tricellular junction, a master regulator of epithelium homeostasis. **Thomas Esmangart de Bournonville**

1759A Slogging through Mud: Isoform Expression and Function. **Daniel Bergstralh**

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1763B Flying High -- Muscle Specific Underreplication in Drosophila Melanogaster. **J. Spencer Johnston**

1764C Truncation of BubR1, a mitotic checkpoint complex protein, causes aberrant ER morphology in *Drosophila melanogaster* neuroblast cells. **Jose Ortega**

1765A Is the deubiquitinase *Usp5* required for cell cycle exit? **Jennifer Bandura**

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1767C Data-driven analysis of Signaling Pathways in *Drosophila Melanogaster.* **Helen Attrill**

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1770C Investigating the role of Smad2 signaling during *Drosophila* wing development. **Edward Eivers**

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1772B A Functional Analysis of 20E-Stimulated Glue Secretion in the *Drosophila* Larval Salivary Gland. **Nichalas Nelson**

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1774A Science is collaboration: Multiple TGF-β/Activin ligands contribute to carbohydrate homeostasis. **Heidi Bretscher**

1775B Role of prostaglandins in germline stem cells of the *Drosophila* ovary. **Nicole Green**

1776C Dissecting PLC-γ domain function in Drosophila. **Justin Thackeray**

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1778B Regulation of Wnt/Wingless Signaling Receptor Stability via Deubiquitination. **Zachary Spencer**

1779C Investigating roles of Bazooka/PAR3 and microtubules for stabilizing adherens junctions in the *Drosophila* embryo amnioserosa. **Tirthankar Ray**

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1796B A role for Ykt6 in patterning during oogenesis in *Drosophila*. **Nancy Pokrywka**

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1799B The dynamics of Par polarity proteins during the ingression of neural stem cells in Drosophila melanogaster. **Gerald Lerchaumer**

1800C Uncovering functional roles in development for differentially expressed ribosomal protein eRpL22-like using a conditional gene knockout strategy. **Caroline Pritchard**

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Disease Models and Aging

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2021B Functional Assessment of *de novo* missense variants linked to Autism Spectrum Disorders through rescue and behavior screening approaches in *Drosophila*. **Jonathan Andrews**

2022C Examining Mechanisms of Nuclear Pore Complex Disruption in Neurodegeneration. **Kirstin Maulding**

2023A Adult movement defects associated with a CORL mutation in Drosophila display behavioral plasticity. **Stuart Newfeld**

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2025C The effects of SOD2 antioxidant and rapamycin on disease progression and autophagy in a *Drosophila* model of Spinocerebellar Ataxia 3. **John Warrick**

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2043C Elucidating the Role of SMN Complex in snRNP Biogenesis. **Rebecca Steiner**

2044A Transcriptomic and epigenetic profiling of neurodegenerative disease models in *Drosophila*. **Jason Wood**

2045B Gain-of-function of *mir-277* ameliorates Aβ42 mediated neurodegeneration in *Drosophila* eye model of AD. **Prajakta Deshpande**

2046C Evading Death in the *Drosophila melanogaster* Nervous System. **Morgan Mutch**

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2048B Attenuation of the Neurotoxicity of Aβ42 with the Human Antimicrobial Peptide, LL-37, in a Drosophila Model of Alzheimer's Disease. **Celine Neudorf**

2049C Small molecule testing using *Drosophila* for development of therapeutics for Neurodegenerative disease. **Judith Tello**

2050A Dominant toxicity of ALS-FTD associated CHCHD10S59L is mediated by TDP-43 and PINK1. **Minwoo Baek**

2051B New alleles of *Drosophila spastin*: a model of Hereditary Spastic Paraplegia and opportunity for undergraduate education. **Emily Ozdowski**

2052C Immune Dysfunction in Spinal Muscular Atrophy is Driven by Aberrant Traf6 Upregulation. **Ashlyn Spring**

2053A Investigating new tools for visualizing Drosophila CNS as a disease model. **Christopher Roblodowski**

2054B ER-membrane proteins and their axonal motility in Drosophila larval nerves. **Saad Rahman**

2055C Targeted Downregulation of *kdm4a* Ameliorates Tau-engendered Defects in *Drosophila melanogaster*. **Sung Yeon Park**

2056A Investigating parasitoid wasp venom as a tool for targeted Aβ degradation. **Ashley Waring**

2057B Toll signaling in the *Drosophila* larval fat body shifts programs of anabolic lipid metabolism and dysregulates nutrient storage. **Brittany Martínez**

2058C *Drosophila* innate immune response against *H. bacteriophora* parasitic nematodes is modulated by TGF-β pathway signaling activity. **Yaprak Ozakman**

2059A Parasitic nematode fatty acid- and retinol-binding proteins suppress host immunity and increase susceptibility to infection. **Chau Nguyen**

2060B Chitinase-like protein IDGF2 binds specifically to B-trisaccharide and modulates the expression of innate immunity genes. **Vaclav Broz**

2061C Anti-inflammatory eicosanoid-like lipid mediators in Drosophila. **Shubha Govind**

2062A Bacterial colonization of Drosophila males and females in natural and laboratory conditions. **MD Mursalin Khan**

2063B Genetic variation in the *Drosophila* antimicrobial peptide, Diptericin A, helps shape microbiome composition. **Sarah Mullinax**

2064C Regulation of post-mating immune response in female *Drosophila melanogaster*. **Kathleen Gordon**

2065A The impact of route of infection on the protective effect of chronic infection in *Drosophila melanogaster*. **Abigail Wukitch**

2066B Heterogeneity in the fat body tissue revealed using single-cell RNA sequencing. **Vanika Gupta**

2067C Commensal niche of gut microbiome colonization. **Haolong Zhu**

2068A Parasitic nematode fatty acid- and retinol-binding proteins modulate host immunity, decreasing resistance to infection. **Sophia Parks**

2069B Homeostatic regulation of regenerative responses to commensal bacteria *via* autophagic clearance of Ref(2)P oligomer. **Hiroki Nagai**

2070C *Drosophila* gut bacteria dictate nutritional physiology via interactions with host diet. **Danielle Lesperance**

2071A The *Drosophila* gut microbiome alters hematopoiesis and wound-healing. **Rose Dziedzic**

2072B Probiotic colonization of the *Drosophila melanogaster* intestine is modulated by the immune response and bacterial fitness determinants. **Alexander Barron**

2073C The synaptic protein Arc1 and *Acetobacter* collaborate to control larval growth in Drosophila. **Scott Keith**

2074A Mechanistic insights into the activation of intestinal innate immunity by microbiota-derived acetate. **Bat-Erdene Jugder**

2075B Absence of the Microbiota in Drosophila Improves Response to Thermal Stress. **Scott Keith**

2076C Interactions between *Metarhizium* natural variation and *Drosophila melanogaster* immunity. **Jonathan Wang**

2077A Indy reduction impacts the gut microbiome of *Drosophila melanogaster*. **Shivani Padhi**

2078B Growing a thicker heart wall under *ELAC2*-linked cardiomyopathy condition in *Drosophila*. **Ekaterina Migunova**

2079C A Novel Role for Micos Complex *CHCHD3/6* in Cardiac Function and Structure. **Katja Birker**

2080A The progeny of flies repeatedly intoxicated with ethanol displays an enhanced functional tolerance to ethanol. **Mariano Loza-Coll**

2081B An unbiased drug screen for seizure suppressors in Dup15q syndrome reveals 5HT1A and dopamine pathway activation as potential therapies. **Lawrence Reiter**

2082C Functional validation of human LMNA variants associated with Dilated Cardiomyopathy using *Drosophila* Gene Replacement (DGR) strategy. **Hanhan Liu**

2083A A genetic screen to identify the roles of human genes in *Drosophila*. **Lily Paculis**

2084B Subcellular translocation of ERK controls the hormone-associated metabolic switch in *Drosophila*. **Wei Song**

2085C Importance of concentrative nucleoside transporter (CNT2) in maintaining the gut homeostasis of *Drosophila*. **Houda Ouns Maaroufi**

2086A *De novo* Mutations in *TOMM70*, a central receptor of the mitochondrial import translocase, Causes Developmental Delay and Neurological Phenotypes. **Debdeep Dutta**

2087B Cyclase-associated actin regulator *capulet* influences structural muscle proteins clearance in the *Drosophila* model of muscle atrophy. **Aaron Aghai**

2088C Molecular mechanisms of brain growth control by *Abnormal Spindle* (*asp*). **Todd Schoborg**

2089A *Drosophila* model for understanding nicotine addiction at the cellular and molecular levels. **Marion Bonneau**

2090B Drosophila model of APOL1 nephropathy. **Junyi zhu**

2091C Flies in A MinE, FLAME: exploring the biology of deep underground mining. **Thomas Merritt**

2092A Using *Drosophila* as a model for PM2.5 toxicology. **Chung-Yi Nien**

2093B Differential gene and protein expression from the aging heart of Diversity Outbred mice. **Isabela Gerdes Gyuricza**

2094C Role of Phosphorylated *DICER1* in Driving Tumor Progression in vivo. **Raisa Reyes**

2095A The Implications of ATP7B in Cellular Proliferation of Hepatocellular Carcinoma. **Hai Pham**

2096B Transcriptional profiling implicates defects in autophagy in Rett syndrome pathogenesis. **Laura Hergott**

2097C Exposure to Environmental Triggers Results in Disease Signs in Rats Carrying a Human *ATG16L1* Crohn's Disease Susceptibility Variant. **Kari Chesney**

2098A A missense mutation in *Birc6* causes a dominant dwarf phenotype that also improves the phenotype of *Mecp2/Y* mice. **Zachary Klugman**

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2100C Lipid metabolism defects contribute to respiratory symptoms in a *Mecp2*-mutant mouse model of Rett syndrome. **Neeti Vashi**

2101A Selective impairment of slow-twitch muscle function in the *Crtap* mouse model of recessive osteogenesis imperfecta. **Nele Haelterman**

2102B Strain Differences in Seizure Penetrance in a Mouse Model of Adult-Onset Epilepsy. **Linda Siracusa**

2103C Gene Editing *ELANE* in Human Hematopoietic Stem and Progenitor Cells Reveals Variant Pathogenicity and Therapeutic Strategies for Severe Congenital Neutropenia. **Shuquan Rao**

2104A Haploinsufficiency of *RAI1* in Smith-Magenis Syndrome-derived Neural Progenitor Cells is Associated with Upregulated Genes Involved in Immune Response and Obesity. **Phillip Pham**

2105B Trophic factor signaling promotes hair follicle hair formation in *Vdr*-null mice. **Thomas Lisse**

2106C Understanding the mechanism of peripheral neuropathies using *in vitro* neuronal culture model. **Bhupinder Vohra**

2107A Trisomic dosage imbalance exhibits tissue, temporal and sex specific non-linear genetic expression in a Down syndrome mouse model. **Randall Roper**

2108B Angiocrine Sphingosine-1-phosphate Activation of S1PR2-YAP Signaling Axis in Alveolar Type II Cells is Essential for Lung Repair. **Yuru Liu**

2109C Analyzing the Role of Host Genetics on Influenza Vaccination. **Marta Cruz Cisneros**

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2111B Role of Host Genetics in *Methicillin-Resistant Staphylococcus aureus* (MRSA) infection. **Aravindh Nagarajan**

2112C A non-mosaic humanized mouse model of Down syndrome, trisomy of a long arm of human chromosome 21 in mouse chromosome background. **Feng Gao**

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2116A Replicative aging is associated with loss of genetic heterogeneity from extrachromosomal circular DNA in *Saccharomyces cerevisiae*. **Rasmus Amund Henriksen**

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2119A Biases in arginine codon usage in human genes correlate with genetic disease risk. **Michael Wangler**

2120B Studying Genetic Variation in Lupus between Ethnic Groups using Data Science. **Jasmin Perkins**

2121C The Endosymbiotic bacteria, *Spiroplasma*, Confer Reproductive Advantages to their Tsetse Fly Hosts. **Jae Hak Son**

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2123B Male reproductive ageing arises via multifaceted mating-dependent sperm and seminal proteome declines, but is postponable in *Drosophila*. **Stuart Wigby**

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2128A Toward identification of protective modifiers of perinatal lethality in a mouse model of Cornelia de Lange Syndrome using a systems genetics approach. **Steven Munger**

2129B Transcriptomic profiling of high sugar-induced obesity resistant and susceptible *Drosophila* Genetics Reference Panel Lines. **Sumit Patel**

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2131A Divergent trajectories of single-cell aging. **Nan Hao**

2132B Phenomic analysis of the influence and interactions of auxotrophy and nutrient availability on yeast quiescence and chronological lifespan. **John Hartman IV**

2133C Functional alterations in nuclear protein abundance during replicative aging. **Natalia Zawrotna**

2134A Modeling human mevalonate kinase deficiency using humanized yeast. **Courtney Gamache**

2135B Humanizing yeast to measure the functional impact of human genetic variation. **Farhat Zafar**

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2137A Functional characterization of a NAA30 variant identified in a boy presenting with multisystemic and polymalformative syndrome. **Sylvia Varland**

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2139C Determining the mechanism of suppression of FUS toxicity by hUPF1/2 in a yeast model of ALS. **Christina Kling**

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2145C Patient derived xenografts in zebrafish embryos (Zevatars) demonstrate differential drug responses to pancreatic cancer chemotherapeutics. **Ceylan Metin**

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2148C MYH3-associated distal arthrogryposis in zebrafish model is rescued with para-aminoblebbistatin. **Julia Whittle**

2149A Using zebrafish to guide a precision medicine approach towards the treatment of complex lymphatic anomalies. **Christoph Seiler**

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2151C Mutations in zebrafish *kcnv2* orthologs alter retinal function. **Nathan Nadolski**

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2155A c-Kit signaling mediates sensory axon dieback in drug-induced peripheral neuropathies. **Adam Tuttle**

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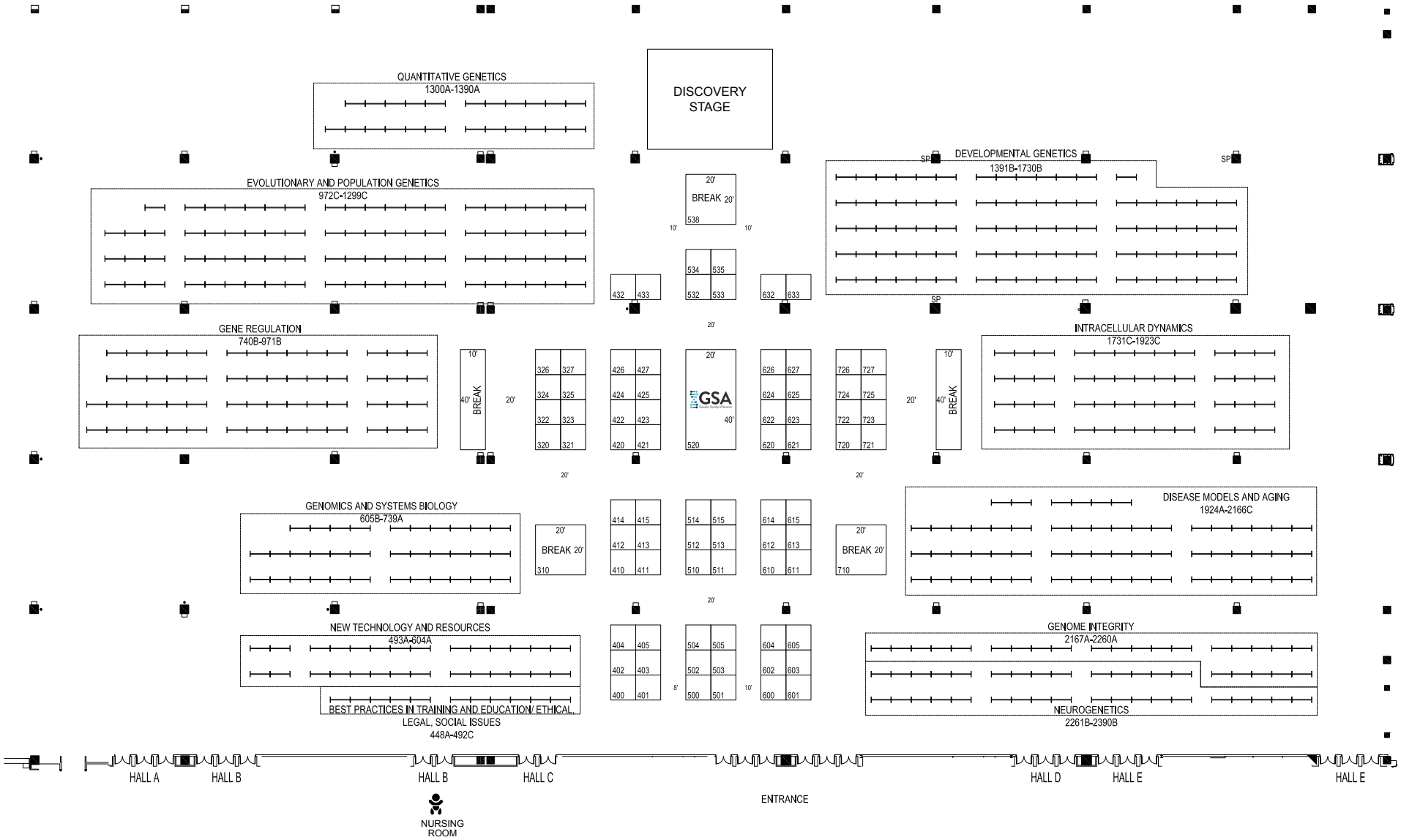

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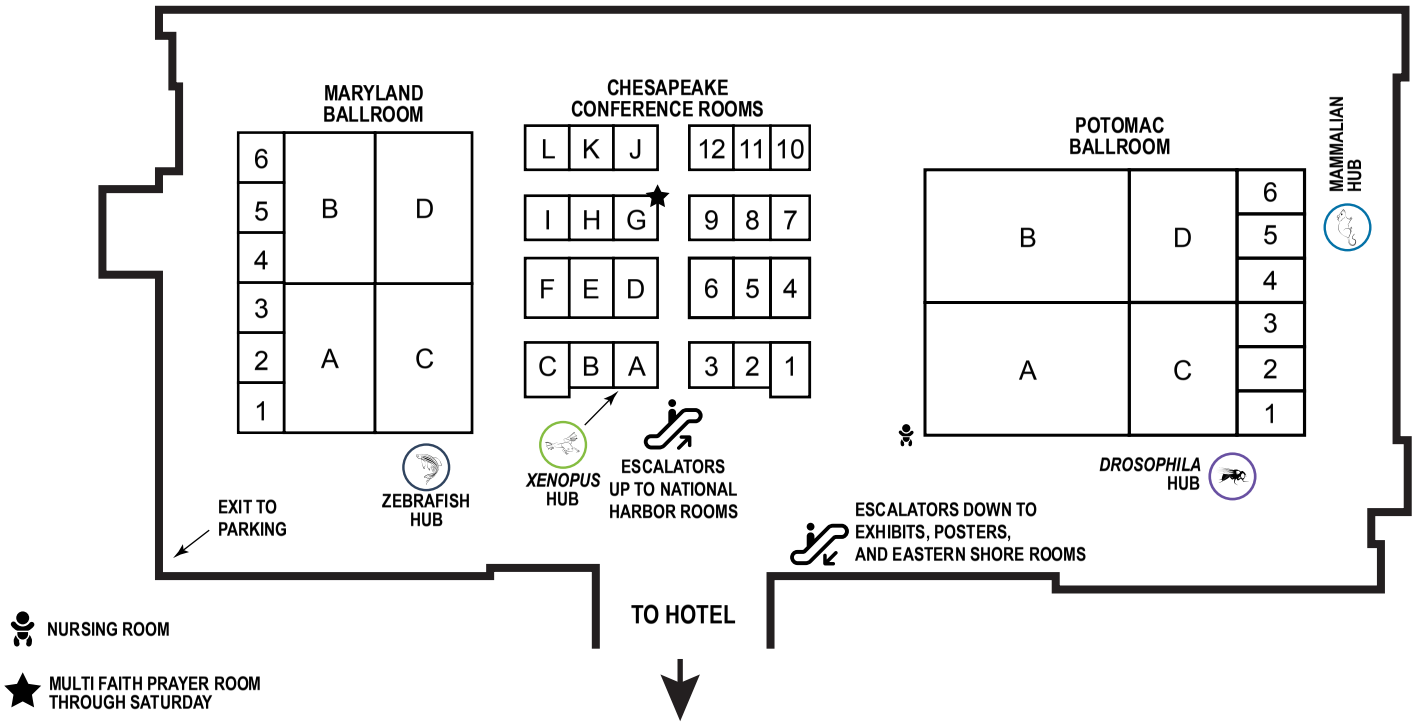

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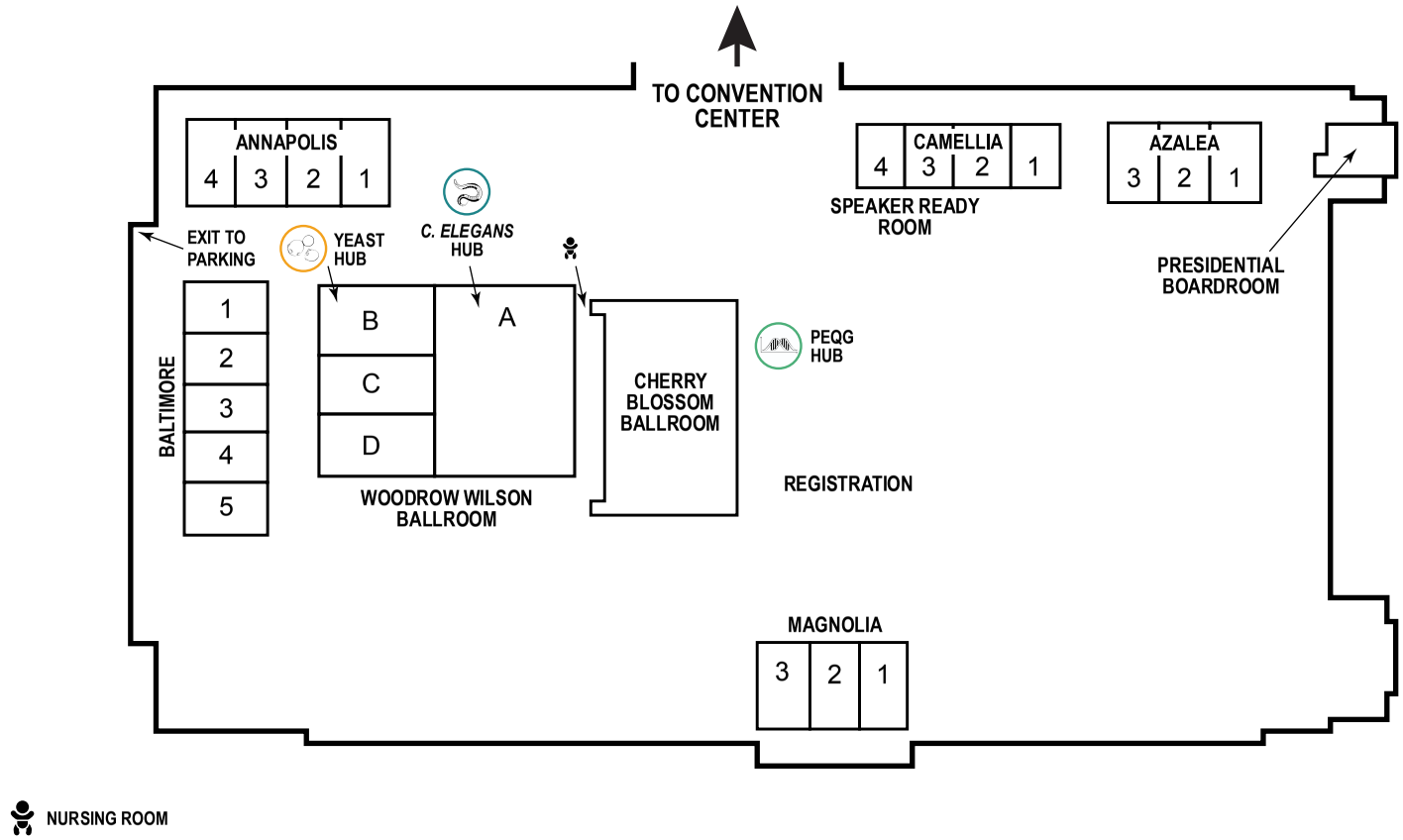

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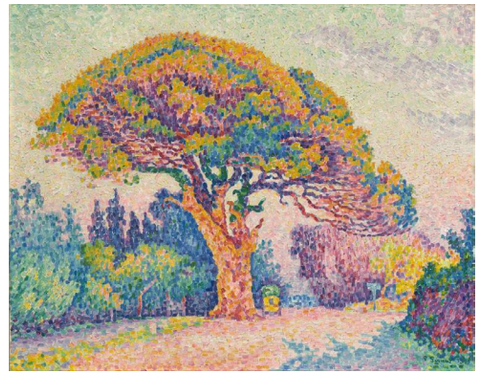

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SCHEDULE OVERVIEW

WEDNESDAY, April 22		
1:00 pm - 6:00 pm	**Speaker Check-in and Upload (required)**	Camellia 3/4
6:45 pm - 9:00 pm	**Opening Keynote Session**	Potomac Ballroom
9:00 pm - 10:00 pm	**Concurrent Community Mixers**	Multiple Locations
THURSDAY, April 23		
7:00 am - 4:00 pm	**Speaker Check-in and Upload (required)**	Camellia 3/4
8:00 am - 10:00 am	**Concurrent Community Sessions**	Multiple Locations
10:30 am - 12:30 pm	**Concurrent Community Sessions**	Multiple Locations
12:30 pm - 1:45 pm	**Community Connections**	Eastern Shore 2
1:45 pm - 3:45 pm	**Concurrent Thematic Sessions**	Multiple Locations
5:45 pm - 6:30 pm	**Gruber Genetics Prize Presentation**	Potomac A/B
7:30 pm - 10:00 pm	**Exhibit Hall Open**	Prince George's Hall
7:30 pm - 10:15 pm	**Poster Session and Opening Mixer**	Prince George's Hall
FRIDAY, April 24		
7:00 am - 4:00 pm	**Speaker Check-in and Upload (required)**	Camellia 3/4
8:00 am - 10:00 am	**Concurrent Workshops**	Multiple Locations
10:30 am - 12:30 pm	**Concurrent Community Sessions**	Multiple Locations
12:30 pm - 2:00 pm	**GSA Publishing Q and A**	Annapolis 1-2
2:00 pm - 4:00 pm	**Concurrent Thematic Sessions**	Multiple Locations
4:15 pm - 7:30 pm	**Exhibit Hall Open**	Prince George's Hall
4:15 pm - 6:30 pm	**Poster Session**	Prince George's Hall
8:00 pm - 10:15 pm	**Keynote Session 2**	Potomac Ballroom
10:15 pm - 11:00 pm	**Tweetup**	Cherry Blossom Ballroom Lobby
SATURDAY, April 25		
7:00 am - 4:00 pm	**Speaker Check-in and Upload (required)**	Camellia 3/4
8:00 am - 10:00 am	**Concurrent Thematic Sessions**	Multiple Locations
10:30 am - 12:30 pm	**Concurrent Thematic Sessions**	Multiple Locations
12:30 pm - 2:00 pm	**Advocacy Event**	Eastern Shore 3
12:30 pm - 2:00 pm	**Recruitment Event**	Maryland A
2:00 pm - 4:00 pm	**Concurrent Community Sessions**	Multiple Locations
4:15 pm - 7:30 pm	**Exhibit Hall Open**	Prince George's Hall
4:15 pm - 6:15 pm	**Poster Session**	Prince George's Hall
7:45 pm - 9:30 pm	**Keynote Session 3**	Potomac Ballroom
9:30 pm - 11:00 pm	**Story Collider**	Woodrow Wilson A
SUNDAY, April 26		
8:00 am - 10:00 am	**Concurrent Community Sessions**	Multiple Locations
10:30 am - 12:30 pm	**Closing Keynote Session**	Potomac Ballroom